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CONTENTS

EDITORIAL

THE study of history is essential to the forming of just evaluations of the present. A journal professing to deal with all aspects of education will therefore fail to do justice to its readers unless it provides articles based upon recent research into the origins and development of our schools. The contributions of Dr Pollard and Mr Bamford are especially welcome. Concerning Oberlin, the founder of the first nursery school, little is known in this country, and it is salutary to learn of yet another debt we owe to the Continent. In contrast, it might well be thought that nothing more could be written about Arnold; but here is something new—evidence that he did not, after all, effect the moral revolution with which he is usually credited. Reputations are not easily destroyed, but Mr Bamford presents a detailed case founded upon careful research.

Two of our articles concern training colleges—a part of the educational system marked by some of the most significant changes in curricula and method since the war. Miss Browne describes the use of school log books and less conventional sources in a history of education course. Both the method of teaching and the intriguing side-lights on schools of sixty years ago will attract general interest. Another means whereby students have been involved more actively in their own education is group discussion. It is suggested that such discussion should be used to illustrate the interplay between the development of a group and the attitudes of its members. No-one must conclude that this would lead to the training of young people as though they were circus animals. A technique has no intrinsic moral quality; its value lies in the purpose for which it is used; and in this respect "interpretative" group discussion is no different from any other teaching device. Certainly we must beware of ushering in *1984*, but we must still admit with Sir Fred Clarke that society is necessarily educative. In the words of Dr Hutchins, "The pedagogical problem is how to use the educational system to form the kind of man that the country wants to produce." The implication is that we must know what kind of man we want to produce, that we must have an accepted set of principles which we apply in our schools; and of this more will be said in future issues of this journal.

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It may be held that an overriding principle is the development of free individuals, but a necessary condition of freedom is knowledge—among other things, of the ways in which human beings may be formed by the social groups in which they live. Only when we are aware of the forces that are moulding us are we free to determine what we shall become.

Dr Maddox deals with a matter which of recent years has attracted considerable attention. Does the fact of growing up in a particular social class affect our chances at eleven plus? The answer to this question has already been given, but many will be surprised that among children whose environment is fairly homogeneous except as regards social class, there are to be found such differences in type of ability as Dr Maddox indicates.

Our other articles relate to children's interests in school subjects. Mr Dale shows that, in at least some schools, history is more popular than might be expected from student reactions. His principal finding, that sex differences are relatively small, will encourage the advocates of co-education.

Mr Flavell writes on a matter of acknowledged urgency. Most of us will agree with his general argument concerning the teaching of arithmetic, some will differ in detail, but none can fail to be stimulated to thought. Some of our readers may be provoked into setting their thoughts on to paper. The editors would be pleased to receive comments, perhaps in the form of brief notes, which would continue to explore this topic in future issues.

THE EDUCATIONAL SIGNIFICANCE OF OBERLIN—THE FOUNDER OF THE FIRST NURSERY SCHOOL

by HUGH M. POLLARD

Assistant to the Director, University of Sheffield Institute of Education

EDUCATION, since the earliest times, has been concerned with the mental, moral, and physical well-being of the individual, yet it has rarely, in practice, been able fully to adjust itself to man's threefold nature. To divide the attention equally between a training of man's mind, body, and morals, and to realise, in the words of the Athanasian creed, that "none is afore or after other—none is greater or less than another", would seem to present an ideal of educational theory and practice that is wholly unattainable. In consequence, as we become only too painfully aware when studying the evolution of educational consciousness, different countries in different centuries have tended to exalt those aspects of man's development that have particularly interested them, and often to stress them unduly.

There is little doubt, for example, that the cathedral and monastic schools of the Middle Ages concerned themselves primarily with morals and intellect. Thus a training of the body was rarely emphasised because the flesh was held as of no account and the material world as straw compared with the heavenly mysteries. Similarly, certain modern civilisations, less concerned with morals and intellect, have tended both to exalt the human body at the expense of the mind and contemptuously to pervert historical evidence.

Perhaps something is to be gained, therefore, from a reconsideration of the life and work of Jean Frédéric Oberlin (1740-1826) who, though tucked away in an obscure corner of France, made what must surely be reckoned one of the boldest attempts to view education in its threefold character.

Before examining Oberlin's work in some detail, however, it is perhaps advisable to remind ourselves of the times in which he lived. In 1762, it will be recalled, Rousseau published *Émile*—a so-called novel that sought deliberately not merely to remind its readers that Nature was the first and most important of all preceptors, but like-

wise to stress the necessity of viewing the acquisition of knowledge from the child's point of view. Nor was it long before this new gospel of enlightenment found practical expression in Germany and Switzerland. Within a short time Basedow started his Philanthropinum at Dessau, and was quickly followed by Salzmann, who founded an experimental academy at Schnepfenthal in Thuringia; by von Rochow, who instituted a school for poor children at Reckahn, near Berlin; by de Fellenberg, who began an agricultural estate at Hofwyl on the outskirts of Berne; and, most important of all, by Pestalozzi, who inaugurated his pedagogical institutes at Burgdorf and Yverdun. Indeed, it is perfectly clear that, in the latter half of the 18th century and early part of the 19th century, a number of prominent teachers became keenly interested in translating into practice the theories that Rousseau had outlined in *Émile* (1). And, of their number, none gave a more sustained or more courageous interpretation than did Oberlin.

He was born on 31st August 1740, in Strasbourg, that border city on the debatable territory between France and Germany which has somehow been able, throughout the centuries, to combine and reconcile the differences and peculiarities of French and German culture. His father was a teacher in the Protestant Gymnasium there and a scholar of some importance, who held strictly to the principle of plain living and high thinking. It was said that he ruled the lives of his seven sons and two daughters with the same degree of severity that he exercised in the classroom, and that the results of his training, as far as one of them was concerned, were wholly justified. On Oberlin's own admission, no better preparation could possibly have been given to a man who was destined to spend his life working in a backward and abandoned community.

Young Oberlin was an intelligent boy, and his father was anxious that he should receive the best available education. In consequence, after completing his studies at the Gymnasium, he was encouraged to read theology at the University of Strasbourg and eventually to become a minister of the Protestant Church. Oberlin did all that was required of him. He qualified for his bachelor's degree in 1758, his doctorate of philosophy in 1763, and for the pastorate of the Lutheran Church in 1764. Yet, oddly enough, once his course of studies was over, he felt disinclined to assume parochial duties. Accordingly he accepted a position as tutor to the sons of a man named Ziegenhagen, a surgeon in Strasbourg, with whom he stayed for two years. The work was not difficult and, in his leisure hours,

Oberlin took great delight in assisting his employer. It was in this way that he gained the knowledge of medicine which was later to prove so useful to him.

At the same time Oberlin made great efforts to bring a stronger sense of discipline into his life. "I want to force myself", he wrote in his journal, "always to do the opposite of what my natural inclinations would have me do. I shall eat and drink but little, therefore, and never more than is necessary to maintain my health. As for my favourite dishes, I shall have less of them than of others. I want to curb my temper and refrain from all swearing. I must be satisfied with the minimum amount of clothes and furniture." He added in a margin to this entry—"Always put aside some part of your income for the poor and look after the money with care. Be as economical as possible. Try to do without unnecessary help from others. Do the work yourself" (2).

By 1766 Oberlin had succeeded in disciplining himself to the point when he felt capable of beginning his ministry. Accordingly he left his work with Ziegenhagen and began a preparatory course of reading, intending eventually to accept an appointment as chaplain to a French regiment. He had little money and was forced to live in a mean attic dwelling in one of the poorest parts of Strasbourg, but he had only been there a matter of weeks when he received a call from the pastor of St. Thomas's Church which altered his entire future. The pastor's name was Stuber and he had worked until recently in a remote district of the Vosges mountains known as the Ban de la Roche. At the sight of the primitive furnishings in Oberlin's room he knew instinctively that he had found the right man to succeed him in his work.

The Ban de la Roche was a wild and desolate stretch of country. It was separated from the plain of Alsace by the wide plateau of the Champ du Feu, one of the coldest and highest massifs of the Vosges mountains, and consisted of several narrow valleys down whose precipitous sides the streams rushed into the river Bruche. Through the wild passes, families from France, Germany, Switzerland and Italy had come at various times in the past, usually seeking refuge from religious wars. The mixture of races had given the inhabitants a characteristic physiognomy and language. Living between Alsace and Lorraine, they belonged to neither. Officially they formed part of France, but they possessed no road to connect them with the plain of Alsace and so the benefits of civilisation had never reached them. They were crushed by the rigours of the climate. History had passed

them by. Until well into the 18th century they were still governed by the most stringent feudal laws.

Oberlin arrived at the Ban de la Roche on 30th March 1767 and found the conditions even worse than Stuber had led him to believe. His parish consisted of five villages—Waldbach, Bellefosse, Belmont, Fouday and Solbach, which were connected by means of rough mountain tracks. The small aggregation of primitive dwellings housed about a hundred families, who were in a half-savage state. Their food consisted either of grass boiled in milk, or of poor, innutritious potatoes, which they called "quemattes" or "cruattes de tierre". The pastor's lodging, situated in Waldbach and grandly named the Presbytery, was a rude hut that he had to share with a local herdsman.

Oberlin accepted the conditions without demur and immediately made a home of the humble dwelling, thus identifying his lot completely with that of the peasants amongst whom he was called to work. But the first years were frightening and discouraging, for the local inhabitants bitterly resented any suggestions he made to improve their way of life and frequently threatened him with physical violence. Lack of courage, however, was never one of Oberlin's characteristics, and he worked hard from the moment of his arrival to rescue the villagers from their backward state.

He made the church the centre of the village life, and, by means of his sermons, exhorted the parishioners to try and improve their condition. As a preliminary measure Oberlin judged it necessary to bring the Ban de la Roche into contact with the outside world. Accordingly, week after week in his addresses from the pulpit, he stressed the necessity of improving the existing means of communication. He directed his parishioners' attention to their negligence and squandering of time. He pointed to their fields—a striking testimony to the little intelligence with which they had been cultivated. He reproached the community for its indifference to the shameful condition of the mountain paths, and finally called upon all God-fearing men of good heart to join him in helping to rectify so sad a state of affairs. Thus, bit by bit, he gathered together a group of workers by whose united efforts, after months of labour, a road was constructed which connected the Ban de la Roche with the highway to Strasbourg.

As time progressed, Oberlin's love of order and method produced a marked effect throughout the district. Bridges were constructed, houses erected, and a new church built. Several young women were

sent to Strasbourg to learn midwifery, and a young man, Sébastien Schneidecker, took a course of training under Oberlin's former employer, Ziegenhagen. A dispensary for sick people was opened, and trained assistants were despatched to outlying hamlets whenever anyone was too ill to walk to Waldbach. Thus the benefits of medicine came to the Ban de la Roche, and the villagers, after their initial hostility had been overcome, were quick to appreciate that in their pastor they had found a new ally and a friend. Oberlin, for his part, never wearied of helping them in any way possible. One of his earliest innovations was to send youths to Strasbourg to be trained as carpenters, masons, glaziers and blacksmiths, and thus to introduce good workmen into the villages who could teach others the trades which they themselves had learnt. Another improvement was to send to Riga for the best kinds of flax, and to Switzerland, Holland, and Lorraine for new varieties of potato. He introduced the growing of sainfoin and clover, and took elaborate pains to teach the mountain folk how to graft fruit trees and treat the barren land with fertilisers and manures. "Que rien ne soit perdu" was his favourite maxim and, in the sermons that he preached on hastening the advent of civilisation in his remote parish, he returned time and again to the duty which devolved on the men and women themselves to see that the land yielded its maximum produce. With that end in view he founded a Society of Agriculture in 1778, which met on successive Sundays in the different villages. During the meetings it was his custom to read about ten pages from some authoritative work on rural economy and to ask those present to take note of any experiments which they felt might be of value to them. Prizes were given to the members who achieved the most noteworthy results.

Meanwhile the growing needs of formal education had not been ignored. Within two years of his arrival Oberlin had taken measures to see that the first school was built. He drew the plans himself and, so as not to antagonise the inhabitants of Waldbach, promised to defray all expenses from his own purse. The foundations were laid on 31st May 1769 and the woodwork was completed by 14th August. On that date, however, the workmen unfortunately downed tools, and it was not until 1771 that the school was ready to receive its pupils.

In the village of Bellefosse, lessons were first given to the children in each cottage by turn, often in the most deplorable conditions. After much trouble, however, Oberlin was able to find a suitable piece of ground and the requisite materials for building a school. It

was started on 11th August 1774 and completed shortly afterwards. Other schools were erected during the next few years at Belmont, Fouday and Solbach. The one at Fouday was paid for by M. de Lezay-Marnésia, a relative of the future Empress Josephine, who held the position of Prefect of the Lower Rhine; that at Solbach was provided by Martin Bernard, mayor of the commune (3).

An equally pressing problem was that of teaching staff, and it was to the women of his parish that the pastor first turned for help. In a manuscript written in 1769 he described the tentative beginnings in the following words: "Throughout the two years that I have worked here, the neglected education of so many children in my vast parish has always caused me much grief. It is a burden which weighs upon my heart. I have constantly made attempts to buy or build a house, in order to make a home for education, but all I have done has been in vain. I finally discovered, in the winter of 1769, that Sara Banzet of Belmont, who had held a situation under my predecessor, Stuber, had learnt to knit very correctly [at that time a rare thing in the Ban de la Roche]—that, on her own initiative, she was training the village children to do likewise, but that her father looked askance on the activity as a waste of time. The news caused me untold rapture. I hastened immediately to find the father and made an agreement with him that his daughter should enter my service as a nursery teacher" (4).

Such was the beginning of the nursery schools or "écoles maternelles", which were to play so important a rôle in the education of early childhood, and such, too, was the origin of the Oberlin nursery assistants or "conductrices de la tendre jeunesse". Sara Banzet, the first woman to attempt so important a task, died in 1774 at the age of twenty-nine. She was followed by a few carefully chosen women amongst whom was Louise Scheppler, the humble peasant from Bellefosse, who, by her unwearied devotion and sound common sense, remained Oberlin's collaborator for more than half a century. She first came to him at the age of fifteen and quickly displayed such remarkable qualities in her handling of young children that Oberlin later entrusted to her the whole direction of the nursery schools.

From 1784 onwards Louise Scheppler managed the Presbytery for her master, but refused to accept a salary. What little money she possessed she invariably gave to the poor and needy. It is perhaps hardly surprising, therefore, that, in 1829, the French Academy awarded her "le grand prix de vertu de la fondation Montyon". In the report which he read in her honour, Cuvier, the distinguished

inspector of the French Academy, attributed to her the first idea of the nursery school and stated that she had suggested its origin to Oberlin. "Observing", said he, "the difficulty which farmers experienced in giving themselves at the same time to their work on the land and to watching over their offspring, she conceived the idea of collecting together the children into large rooms where intelligent teachers could look after and amuse them. . . . It was from such beginnings that the present-day nursery schools in England and France arose—schools where the children of working folk are looked after, who would otherwise be left abandoned in the towns. The honour of originating an idea which has already borne fruit and which will soon be universally recognised is entirely owing to Louise Scheppler, a poor peasant woman of Bellefosse. . . . To this day, though advanced in years, she still gathers around her a hundred children between the ages of three and seven, and gives them an education suitable to their years." Louise Scheppler hastened to correct Cuvier's mistake and to ascribe to Oberlin the glory of having originated the nursery school. "It was our worthy pastor", she wrote, "Papa Oberlin [for so everybody called him] who for a long time carried in his heart the wish to create nursery teachers . . . and, when he was finally able to put his plan into operation, I was not even one of the first to be entrusted with so important and useful a task" (5).

Following the examples of Sara Banzet and Louise Scheppler, the men began to come forward as teachers, and soon an earnest little group was formed, amongst whom Sébastien Schneidecker was the best known. He acted in turn as schoolmaster, health officer, mayor and justice of the peace.

Encouraged by the growing interest in education, Oberlin decided to open a boarding school adjoining his own house in order to train future teachers of the poor. His chief desire was that this establishment should foster a love of work, a sense of order, and a spirit of cheerfulness and economy. Accordingly he devised a curriculum which was by no means confined to the three R's and which he himself described as "varied and solid". Furthermore, though great emphasis was placed on moral training, other aspects of human development were not ignored. The pupils were encouraged, for instance, to take frequent excursions into the country and to do vigorous bodily exercises, just as they were in the celebrated Philanthropinum at Dessau. Nor was this the only parallel that existed between these two experimental schools, for Basedow, anxious to

encourage Oberlin's new project, despatched a large number of religious and other books for the benefit of the pupils. Indeed the Ban de la Roche boarding school, so evidence suggests, soon achieved most creditable results and produced "many strong Christian workers", some of whom eventually went to teach in places as far distant as Paris, London and St. Petersburg (6).

The beginnings of Oberlin's educational activities have been stressed because they sum up very clearly the whole compass of his work. He was a born educator. In the narrower sense of the word he had a passion to instruct youth; in a wider sense, he had but one aim throughout his ministry—to awaken in his parishioners a desire for improvement. Every task he undertook was inspired by that one pedagogical ideal. It mattered not whether it was the planting of a fruit tree or the repairing of a road. He first did it himself in order to show others how it should be done. Next he offered advice and encouragement to those who strove to imitate him. Oberlin, in short, did everything possible to help the humble mountain folk to become their own instructors and rely on their own resources. He was not merely a philanthropist who showered his blessings on the indigent: he was a teacher who strove to make them aware of their inherent capabilities.

Unlike so many of those in the service of the Christian Church, Oberlin championed the French Revolution from its outset, despite the fact that, because of it, he ultimately lost his right to speak from the pulpit and only narrowly escaped the guillotine. Even in the darkest days, his patriotism and love of mankind never failed him, however, as we may judge from the following words, spoken on 15th August 1792 to commemorate the departure of the volunteers from the Ban de la Roche: "If you must enter enemy territory, remember that we are not the enemies of the people. So much we have sworn. The French princes, the deserters, the refugees, the King of Prussia are our enemies, but their subjects are not so. They are to be pitied as we are, for the tyrannies of their princes have enveloped them in the misfortune of war. Be kind to them then; be just and considerate to everyone. . . . Finally, may God be everything to you and more than everything. Strive by prayer to love Him with all your heart, with all your soul, and with all your strength. God will be with you abroad and will bring you once again into the arms of your family with honour and renown; and if one of you should find his grave far from here, he will find, too, that the countries to which God and our duty lead us are always the nearest to Heaven" (7).

After the Revolution, when the population of the Ban de la Roche was greatly increased by an influx of refugees, Oberlin's tolerance was unbounded. He administered the Sacrament impartially to Catholics, Lutherans and Calvinists and, so as not to offend their different scruples, took pains to prepare various kinds of bread in order that all might join in a common act of devotion. His charity extended likewise to those among his neighbours who were Jews or non-believers. It mattered not whether they held religious convictions that he did not share or whether they held none. He made friends of them all.

Oberlin struggled through the next twenty years without complaint, but times were far from easy. Food became insufficient and unemployment grew apace. Indeed, by 1813 the situation was so desperate that disaster would undoubtedly have overtaken the community had not help been received from Switzerland. It came by way of Jean-Luc Le Grand of Basle, a former director of the Helvetic Republic. Having heard of the sad plight of the mountain folk and of the noble work of their pastor, he brought his family to live in the Ban de la Roche.

To ease the situation Le Grand's two sons, Daniel and Joseph, moved their ribbon-making factory from the Upper Rhine to Fouday and, by so doing, provided employment for a great number of hands. Then looms were distributed amongst the houses of the different villages, and the peasants were given instruction in the new work. Thus, in the space of a short time, unemployment completely disappeared and a degree of prosperity returned to the valleys.

Meanwhile Le Grand himself spared no effort to give what help he could. He undertook the superintendence and direction of the schools and discharged his duties with such efficiency that he soon became one of Oberlin's most useful auxiliaries. During his period of residence in Switzerland, Le Grand had been a close friend and admirer of Pestalozzi. Obviously, therefore, through him Oberlin was brought into much closer contact with the nature school of teachers and with the pedagogical ideas of one who had already gone far in his self-appointed task of revolutionising primary instruction throughout Europe—a fact that becomes increasingly obvious when we study the way in which, after Le Grand arrived in the Ban de la Roche, Oberlin's educational plans matured.

Le Grand's great desire was to establish the pastor's pedagogical theories on a sound, scientific basis so that others might profit by the experiments he had conducted, but Oberlin steadfastly refused to

consider his educational work as a thing apart. To him it was but one of many sacred tasks that he had undertaken as a result of his religious beliefs. Nevertheless, it was from notes composed by Le Grand that the following details concerning the schools of the Ban de la Roche first became known.

By 1814 Oberlin had built up an educational organisation that catered for every child between the ages of three and fifteen. It comprised a nursery school (l'école des plus jeunes ou commençants) for pupils between the ages of three and seven; an intermediate school (l'école moyenne) for those between seven and thirteen; and a secondary school (l'école des adultes) for those between thirteen and fifteen.

The smallest children were received into large, airy rooms and entrusted to the maternal care of the "conductrices de la tendre jeunesse". Play occupied a large part of the time-table, but some of the older girls and boys were taught to spin, knit and sew. The use of the Ban de la Roche *patois* was strictly forbidden. History was taught by means of pictures. The children were given abundant practice in drawing and colouring geographical maps. They began with a map of the Ban de la Roche, followed by maps of France and finally of Europe, thus proceeding from the known to the unknown in the approved Pestalozzian manner. Furthermore, this activity delighted them so much that their enthusiasm spread to the families, and map-colouring became a recreation for parents on Sundays. Again in strict conformity with Pestalozzi's advice, the "conductrices", during the warm weather, took the children on nature rambles and made them search in the woods and meadows for the plants which had previously been described in the class-room. The girls and boys collected them, drew them and learned their names. It is also interesting to note that parents were asked to give small portions of their gardens to make into flower-beds. Oberlin, of course, saw in this early contact with nature a valuable preparation for the work his pupils would undertake later (8).

The nursery school had three classes. In the first two, the children were encouraged to put aside bad habits and be obedient, gentle, orderly and kind; to learn the letters of the alphabet, spell simple words, give the correct French names for objects that were shown to them and acquire some idea of religion. Before leaving the third class they were expected to have gained at least an elementary knowledge of reading, writing, adding, subtracting, multiplying and dividing.

The intermediate school which followed was also divided into three classes. In the first of these, in addition to the subjects which had been started in the nursery school, a beginning was made on geography, the explanation of geographical maps, fractions and German. On leaving the intermediate school the pupils knew how to pronounce German words without necessarily being able to spell them, and were capable of singing from music.

The "école des adultes" was a part-time continuation school for children between the ages of thirteen and fifteen who were already in employment. As a result the instruction was given early in the morning (in summer between five and eight o'clock) so as not to interfere with the day's work. The school contained three classes, as did the other schools, and its curriculum embraced the following subjects: natural history, botany, book-keeping, world history, translation from French into German, the principles of agriculture, elementary science, hygiene and religion. The pupils, on completing their studies, were also supposed to have learnt something of law-suits and litigation, the wages of workmen, the duties of magistrates, money, property, loans, debts, interest, exchange and the rules of inheritance. And lastly, they were expected to have acquired a sound knowledge of penmanship. "To write illegibly", Oberlin asserted, "is a sign of profound selfishness, which renders the writer utterly careless in regard to the trouble, pain and loss of time caused to the person who has the duty of reading such writing" (9).

The varied time-table of the secondary school illustrates the all-inclusiveness of education as conceived by Oberlin for a primitive community in one of the most backward districts of France more than a century and a half ago. It was, of course, a programme expressly designed for children called to live in a certain locality. Oberlin aimed at giving them a knowledge of what would be useful in the circumstances under which their lives were to be lived. At the same time he endeavoured to inspire them with a love of study for its own sake and make them reflect upon their destiny. He knew that most of them would stay in the Ban de la Roche and spend much of their time ploughing and re-ploughing the soil of the valleys as their fathers and grandfathers had done before them. Yet he hoped, by virtue of the instruction he gave them, that they would approach their work with a totally different attitude of mind because they had been taught to think, observe, and strive for a real and lasting progress.

Such were the main educational ideas of one of the most interesting and most enterprising social reformers of his day—a reformer who,

but for the dictates of geography, would undoubtedly have exercised a much wider influence than was actually the case. Yet his life and work were not completely unknown to a number of his contemporaries both at home and abroad, who were anxious to promote the welfare of human society. Scattered accounts of his work, for example, found their way into various publications in England, France and Germany (10). Travellers from different parts of Europe began occasionally to break their journeys to the valleys of Piedmont in order to converse with the aged pastor (11). Various representatives of the British and Foreign Bible Society made their way to the Ban de la Roche and, as a result of their efforts together with those of Le Grand, Waldbach developed into one of the most important centres for disseminating copies of the Scriptures through France (12). In addition, towards the end of 1818, Oberlin was awarded a gold medal by the Royal Agricultural Society of France in acknowledgment of the services he had rendered the Ban de la Roche, and in 1819 he received a royal order for this decoration with the ribbon of the Legion of Honour. Indeed it is perfectly clear that, towards the close of his life, the pastor's charitable endeavours were arousing interest far beyond the confines of his parish and earning him many tokens of commendation. It is only right, therefore, that this brief review of his educational work should terminate by stressing these testimonies to his worth. But the greatest of them has as yet received no mention. It is the simple tribute paid to Oberlin by his parishioners on the occasion of his death when the following words were inscribed in French on a marble tablet which was placed in the Church at Waldbach:

> To Jean Frédéric Oberlin
> Pastor and Parent of this Parish
> during 59 years.
> Born in 1740; died in 1826.
> "The memory of the just shall be blessed"
> Prov. X. 7.

REFERENCES

1. Pollard, H. M., *Pioneers of Popular Education, 1760-1850*, London, Murray, 1956, ch. 2.
2. *Dictionnaire de Pédagogie et d'Instruction Primaire*, Paris, Librairie Hachette, 1888. Pt. 1, vol. II, Art. "Oberlin", pp. 2127-8.
3. Butler, J. E., *The Life of Jean Frédéric Oberlin, Pastor of the Ban de la Roche*, London, The Religious Tract Society, pp. 59, 168.

4. *Dictionnaire de Pédagogie et d'Instruction Primaire*, Art. "Oberlin", pp. 2128-9.
5. ibid, Arts. "Conductrices de l'Enfance", p. 464; "Écoles Maternelles", pp. 1862-3.
6. Butler, J. E., op. cit., pp. 89-90.
7. *Dictionnaire de Pédagogie et d'Instruction Primaire*, Art. "Oberlin", p. 2131.
8. Cunningham, F., *Memoirs of John Frédéric Oberlin, Pastor of Waldbach in the Ban de la Roche*, London, Holdsworth and Ball, 1831, third ed., pp. 95-97.
9. Butler, J. E., op. cit., p. 183.
10. Sims, T., *Brief Memorials of John Frédéric Oberlin*, London, Nisbet, 1830, Preface, p. v.
11. ibid, pp. 57, 68, 73.
12. ibid, p. 76.

DISCIPLINE AT RUGBY UNDER ARNOLD

by T. W. BAMFORD
Senior Tutor, University of Hull Institute of Education

THOMAS ARNOLD was headmaster of Rugby School from 1828 until his death in 1842. He entered on his tenure at a time when public schools in general had a bad reputation, and soon after his period there was renewed confidence in them. As a noted personality and a prominent figure in the religious controversies of the time, it is commonly held that Arnold was responsible, in part at least, for the moral reform of public schools, and that he accomplished much at Rugby itself. This supposition is based largely on opinion, whereas the matter is to some extent a question of fact that can be checked by an analysis of first-hand witnesses.

Arnold came into contact with 1,500 boys during his term of office. Of these only seventeen, as far as can be traced readily, left any personal record (1). In addition we have Hughes's *Tom Brown's Schooldays*, in which life under Arnold is described as a rather pleasant adventure relieved by beatings, roastings, bullying, tortures and the rest. Six of our accounts state specifically that this book presents a completely accurate account of Rugby in their day, both in spirit and fact (2). These names cover the entire Arnold period from 1825, three years before he arrived, till 1844, two years after he died. Presumably, therefore, the turbulent, tough, bullying life continued throughout.

Some people, however, have stated that *Tom Brown*, although based on fact, is not really a record of Arnold's Rugby, but reflects the grim picture of conditions under his predecessor, Wooll (3). But this ignores the fact that for many years it was a favourite occupation of Old Rugbeians contemporary with Thomas Hughes to assign actual names to the characters. Actual incidents were also recognised. As Seton Karr put it: ". . . every one of the principal incidents described by Tom Hughes was founded on fact" (4).

Even if we ignore all this evidence, the claim that *Tom Brown* does not refer to Rugby under Arnold is fantastic, if only for the reason that the author, Thomas Hughes, entered the School in 1834,

six years after Wooll had gone, when continuity with his reign had vanished for all but one or two at the very top (5). Moreover, Thomas Hughes wrote a life of his brother George, who was a pupil at the school from 1834 to 1839, and none of this second work can possibly be classed as fictional or displaced in time. Here again is the description of a tough existence:

> He writes home of everything, in these first years, except of what he knew would only give pain, and be quite useless—the exceedingly rough side of school life as it then existed. A small boy might be, and very frequently was, fagged for every moment of his play hours day after day; and there was a good deal of a bad kind of bullying (6).

This was in the period 1834 till 1838. Only in 1839, according to Tom Hughes, did George succeed in curing bullying in the School-house, the very house for which the headmaster himself was responsible (7). Other houses continued to be in a bad state, and troubles connected with them eventually involved George Hughes himself and he was expelled.

Of our other witnesses, W. E. Oswell wrote: "Drinking was the vice of the school. Arnold, I believe, suspected it, but he never gained sufficient knowledge to act on" (8).

Arthur Hugh Clough, the poet, was a particular friend of the Arnold family, and yet his letters are continually concerned about the evils in the lower part of the school. The same troubles were endured by J. P. Gell, whose father even wrote a letter of protest to the headmaster. This rough existence is also apparent from the career of H. H. Dixon. He entered the school in 1838, towards the end of the Doctor's career, and found it a place to encourage "a sporting taste". The local staghounds, the Pytchley, the steeple-chases, hare and hounds—all were immensely popular. School fights were common and public. At the confectioner's shop in the High Street the boys kept a pack of beagles and a stock of guns for hunting. Eventually, Arnold's threat to put the shop out of bounds put an effective stop to this. At one time the boys organised a successful but entirely unofficial point-to-point. The second meeting was only abandoned after a threat of mass expulsion. Altogether, Dixon seems to have had a tough, enjoyable, and adventurous time. It must be remembered, however, that he entered at sixteen and left two years later, so that bullying, fagging and the rest were far below him from the outset.

Of the seventeen accounts available of life under Arnold, thirteen are in agreement with regard to the bullying which was carried on.

Two of the remaining four witnesses endorse everything that has been said about the rough and tough nature of life at the school, but their main interest for us lies in their religious attitude. The older boy, Spencer Thornton, entered the school in 1828. He carried on a revivalist campaign with his form mates, trying to convert them to an active Christianity. In his spare time he handed out tracts, visited the poor and the sick in the town, and advised Arnold himself on the most deserving cases. Not content with the service in the school chapel on Sunday mornings, he used to hurry along to the parish church to be in time to hear the sermon. His efforts were not entirely without results, for some of the other boys caught this fervour and joined him in varying numbers from two to thirty. It was no wonder that Arnold said of him: "I would stand to that man, hat in hand."

The other boy, H. W. Fox, was fired with equal religious zeal, but with a greater spirit of martyrdom. He was always trying to convert his form mates, but with little success:

For at Rugby, I have no-one (except Robert) to converse with on religious subjects: if I begin to do so with any, they either show a complete reluctance, or a great coldness to it. I, however, feel that it is for the best, for it leads me to rest on God as my only friend, and to open my heart to him more (9).

For this boy, waste of any kind was a sin, wasting one's money on sweets just as much as wasting one's time reading when there were lessons to be done. As the price of friendship he demanded that his own strict code of Christian principles be adopted, and it is therefore not surprising that he led a lonely, frustrated life.

Another boy, Thomas Valpy French, missed the lower school altogether, went straight to the fifth form, and seems to have been perplexed over the content of Arnold's Sunday sermons and the general effect of Newman's Tract 90, rather than worried by other features of life at the school.

Of these sixteen accounts, all but the last are unanimous in stating that the treatment of boys by boys was variable, at times very grim, with fagging a constant burden. The exception, French, says little on the point. As a fifth-former he would, of course, have been exempt from the beginning.

This leaves the experiences recorded by A. P. Stanley in his *Life of Dr Arnold*. Here the impression is one of a school of high moral tone with little abuse, and this view has generally been adopted. This, however, is not confirmed by Stanley's own biographers. In an extensive account of his schooldays, Prothero and Bradley point out

what an extraordinary career Stanley had. He entered in February
1829 and was put in the fourth form straight away. Before he had
been there six months he had two promotions and was in the fifth,
and thenceforth exempt from fagging altogether. Moreover he had a
saintly air that his fellows found difficult to penetrate:

> . . . it is not too much to say that he was never persecuted nor bullied,
> and scarcely ever laughed at (10).

> Even as a new boy he had been treated with something of a tenderness,
> and almost a deference, unparalleled in those rough days of the history of
> Rugby (11).

His mother said the same: "Arthur says he does not know why,
but he never gets plagued in any way like the others; his study is left
untouched, his things unbroken, his books undisturbed" (12).

The whole of this account hardly implies that abuse was absent,
but rather that Stanley was exempt from it. More important, how-
ever, than any inferences is the fact that Stanley himself in later
years came to see that he had been blind in youth. After the publi-
cation of *Tom Brown* he could hardly believe at first that he had
been a member of such a school: "It is an absolute revelation to me:
opens up a world of which, though so near to me, I was utterly
ignorant" (13). He said much the same in the Preface to the twelfth
edition of his own *Life of Dr Arnold*:

> It is not too much to say that—at least so far as the school is concerned—
> a more vivid picture of Dr Arnold's career is conveyed in the occasional
> allusions and general tone of that charming book (*Tom Brown's Schooldays
> at Rugby*) than is given in the elaborate descriptions in this work.

Among other things this quotation settles finally any possible
doubt on the authenticity of *Tom Brown*. Some historians of the
school and the headmaster have not liked the inferences from this
story of school life. Selfe says that it "contains almost every vice
of which schoolboy life is capable". That is true, but it also happens
to coincide with the evidence of the eye-witnesses, as we have seen.

Although the joy and misery of a boy's existence is largely
governed by other boys, yet his treatment by masters and prefects
is an important part of his life. Arnold himself was a firm believer in
corporal punishment and wrote a long article in defence of it. "The
fault of the old system of flogging at Winchester", he asserted, ". . .
was not its cruelty but its inefficiency; the punishment was so fre-
quent and so slight as to inspire little either of terror or of shame" (14).

Provided the boy was under fifteen, flogging was corrective and
not degrading. Some boys, however, could not be cured, for Arnold

saw evil as twofold, partly inherited and partly environmental. The inherited part he could do little about, but the other influence could be fought against. Evil to him was catching, like the plague, and the more boys clung together the more evil flourished and spread. During the struggle against acquired sin he had hopes, but if a boy reached fifteen and still needed corporal punishment, his case was hopeless and he was expelled. He had two remedies: flogging below fifteen and expulsion thereafter. Both of these, being somewhat drastic, he only used as a last resort, for like all headmasters he tried the effect of persuasion first.

Stanley states that flogging was confined to moral offences such as lying, drinking and habitual idleness. Unfortunately these are wide terms and it is difficult to think of crimes that cannot be squeezed within them, except sex crimes and disobedience. For the latter we know that he expelled, as undoubtedly he also did for the former.

The degree of flogging depended on the crime. At the least it was two or three strokes, but at the worst eighteen or more. This was for a celebrated case of lying—lying to Arnold himself, which no doubt increased the severity of the offence. This case was important for it brought Arnold before the public, and the assistant masters thought fit to stand by him. In a declaration they asserted that eighteen lashes was not excessive, and indeed normal for the crime, and "that the punishment was no more than such a fault, if really committed, deserved." (15).

With such a dynamic character, it is not surprising that Arnold's reputation within the school was mixed. Those who knew him well liked him, though not all were ecstatic. Even Stanley was not blind to the fact that the headmaster was not universally popular. He claimed that his shyness and abruptness brought a severity into his manner:

... the sternness of his character was the first thing that impressed them. In many, no doubt, this feeling was one of mere dread, which, if not subsequently removed or modified, only served to repel those who felt it to a greater distance from him (16).

Those who left before the sixth, the majority, never came under Arnold's personal guidance and so never saw him at his best. Many reiterated these remarks of Stanley. Perhaps Pell puts the case best:

What respect and admiration, not unmixed with fear, that commanding figure inspired! With many, I make no doubt he was regarded with fear alone, and by such he was only talked of as "Black Arnold!" (17).

Punishments by masters were similar. Boys were flogged or given

lines according to the nature of the offence. Even with lines there was always the danger of doubling or redoubling, or eventual cancellation by flogging when the situation became hopeless. Treatment varied enormously, and there was at times a glorious lack of organisation. Thus, when Albert Pell set foot in the building for the first time in 1832, he looked around, sized up the various groups and put himself in the third form. He would have done better to let someone else make the choice for him, for he made a bad decision:

> My master, I found to my sorrow, was an adept with the cane; he resorted to it—with little provocation or reason, as far as I could see—possibly with the object of warming himself on cold mornings.

In the lower fourth, Pell found himself with a master who did not believe in corporal punishment. His career, however, had not included a Pell before, and for him the master was pleased at last to make an exception.

It is interesting to see that here under Arnold there were masters who hardly ever used the cane, but they were very few.

The extreme of all punishment was expulsion and at times Arnold elevated it into a virtue:

> Till a man learns that the first, second, and third duty of a schoolmaster is to get rid of unpromising subjects, a great public school will never be what it might be, and what it ought to be (18).

At times he threatened mass expulsion, and on one occasion when he expelled six together the school seethed with revolt so that only the passionate influence of Stanley, Lake, and Vaughan saved him from open rebellion (19). An evil influence was expelled at once and the headmaster considered the stigma well placed. As for the boys who would not work and made no progress in their studies, they were expelled quietly at the end of term like drones excluded from a hive, on the supposition, probably correct, that such youths would form centres of evil later on. For this reason it is difficult to assess the expulsion rate under Arnold, although by tradition it was very high, if not unique. Certainly this constant eviction must have had a considerable effect, good or bad, on the remainder (20).

As for the sixth, they had passed the barriers of toughness and scholarship lower down the school. Arnold gave them power and expected responsibility in return. He regarded this power as equivalent to his own. They could flog. Three strokes were normal, six the maximum with a right of appeal. Canes were used for this purpose, and according to one victim's account they were sometimes weighted with lead, while a "knotted blackthorn stick" was thrown

in to add variety (21). On the other hand these boys had to work hard and many collapsed under the strain. Life was intense. External goodness was not adequate by itself: they must feel and convey the fact that they were conscious of the fight against evil. As one critic put it, "They were taught to be always feeling their moral muscles."

It is revealing to compare the state of affairs under Arnold with the situations under his predecessor and successor.

There are fewer memoirs of the earlier period under Wooll. The account of Roundell Palmer paints a black picture with severe floggings by the masters, although he admits that life was variable and suited his brother very well (22). But the main source of information of this period is an earlier and extensive account of the school by Matthew Bloxam. He claims that the worst excesses were rooted out by 1815, and even enumerates them:

> It [buffeting] was, indeed, a barbarous custom, but how or when it originated I am unable to devine; but it, together with chairing and clodding —two other barbarous customs—was very properly put a stop to during my early career at Rugby School, and before I had reached the Second Form (23).

Matthew's brother Thomas says much the same, stating that while the worst abuses were put down, some of them, like drunkenness, persisted in a hidden kind of way, and indeed as we have seen, this continued in Arnold's time right to the end (24). The same kind of conclusions may be drawn from the words of Richard Corfield (25). Roundell Palmer's often quoted statement that discipline, like numbers, declined under Wooll, is therefore countered by three statements to the contrary, two of them eye-witnesses and one a parent of two sons in the late period. Moreover Arnold himself, as we shall see later, confirmed this majority view. Perhaps the last word may be left to W. C. Lake, who was at the school under both headmasters and was a particular favourite of Arnold: "Meanwhile it would be a mistake to suppose that this [Arnold's] influence materially changed the character of school-life in the ordinary schoolboy" (26).

It may be presumed from all this that abuses did exist under Wooll and that Palmer experienced them, but that they were of the same order and kind as those experienced under Arnold. The cure of blatant abuse can be placed as far back as 1815 and the treatment of boys before that time would seem to have been very grim indeed, as anyone can tell who has read the accounts of W. C. Macready, C. J. Apperley and the Bloxams.

As for the staff—boy relationship, it has been said that Wooll was both weak and severe, and that he lacked the personality to control boys naturally. Thus he is said to have flogged a whole form of thirty-eight boys because they deserted one of his classes. The facts as usually quoted are wrong, however, and the inference quite misleading (27). There is no evidence at all to confirm the view that Wooll was a harsh man; certainly he was no harsher than Arnold.

After Arnold died in 1842, his place was taken by A. C. Tait. The school was in a flourishing state as far as numbers were concerned and we have several accounts of the first few years. One comes from Lewis Carroll, who found life intolerable, especially at nights, when the older boys in the winter time removed the blankets of the youngsters to keep themselves warm: "I cannot say that I look back upon my life at a Public School with any sensations of pleasure, or that any earthly considerations would induce me to go through my three years again" (28).

Carroll may have been over-sensitive, but George Melly was certainly not. He wrote a factual account of the school in the early days of Tait (29). It reads exactly like *Tom Brown* although it was published three years earlier (1854). Melly, who claimed to be in a good house, was kicked and cuffed half a dozen times a day. Here also are described, among other tortures, the usual floggings and blanket tossings and two novel ones, hall singing and the drinking of salt water stirred with a tallow candle. The book leaves an impression of a school with barbarous behaviour in some parts, but with normal boyish spirits in the main mass occasionally taken to excess. In a good house the prefects tried to keep down bullying, but with only partial success. In a bad house where the prefects were too weak to interfere, moral influences were bad and treatment severe. Confirming this comes the account of Charles Pearson (30). The first years of Tait therefore do not confirm the view that Arnold had revolutionised Rugby.

Apart from the word of the boys and the evidence of the pre- and post-Arnold eras, there is the evidence of the headmaster himself. He never at any time claimed to have cured the school of disciplinary worries or stated that the school was in a poor moral condition when he took over. On the contrary, when Arnold went to Rugby first to see Wooll, both he and Mrs Arnold were favourably impressed. He was still impressed a month after taking over his duties as headmaster:

There has been no flogging yet (and I hope that there will be none), and

surprisingly few irregularities. I chastise, at first, by very gentle impositions, which are raised for a repetition of offences—flogging will be my ratio ultima—and *talking* I shall try to the utmost (31).

This is proof positive of the condition of the school. Even if the boys behaved themselves well for a day or two at the beginning, they could certainly not have held out for a month if the former régime had been of blood and iron consistency. Especially is this so when we consider that the staff was unchanged, and that the boys of the lower school would hardly have seen Arnold at all. They would, in fact, have been still in the same environment, with the same masters as they had seen morning after morning for years. From another angle it would have been surprising if the moral conduct of the boys had been low, for in the last years of Wooll numbers were small and the staff/pupil ratio was correspondingly high.

Indirect impartial evidence is always difficult to assess, but an interesting point comes from an analysis of the School Register. The details given there enable us to trace which boys, as Old Rugbeians, sent their own sons to Rugby. We find that, with the exception of the year 1800, the first boys to send sons back to the school entered in 1807. From this date on, every year, with the exception of 1826, saw entrants who sent sons back to the old school. If we work out the number of such boys as a percentage of the total number of entrants for their particular year, we get a series of figures ranging from 0 to 9·3. It can be said at once, however, that there is no material difference between the sequence for Wooll and that for Arnold (32). It is an assumption, of course, that the moral condition of a school is reflected in the number of boys who will entrust their old school with their own sons in future days. It seems, however, to be a reasonable assumption, and suggests that conditions under Wooll and Arnold were very similar with no sharp gradations or even general trends.

On all counts the story is plain. Everything goes to confirm the view that under Arnold the life of the average boy did not differ markedly from that before and after his time. All our evidence suggests that Arnold did not solve the problem of discipline at Rugby; it indicates, however, that improvements were made at two periods, the first about 1815 under Wooll and the second well after Arnold's day.

It would be wrong to assume that because abuses occurred in the times of Wooll and Arnold that the headmasters were ignorant of them, or unable to stamp them out. It so happened that abuses were produced by the system they deliberately designed, and they re-

garded the evils as of lesser importance than the virtues they were trying to inculcate. This, however, is not a matter that can be pursued here.

REFERENCES

1. This number is derived from a perusal of boys in Michell, A. T., *Rugby School Register*, and a corresponding check in the index of the British Museum. The seventeen accounts are as follows:

Anon, "The Parents' Review", November, 1895—April, 1896.
Arbuthnot, A. J., *Memories of Rugby and India*, 1910.
Birks, H., *Life and Correspondence of Thomas Valpy French*, 1895.
Booth, J. B., *Bits of Character—a Life of H. H. Dixon.*
Clough, A. H., *Letters and Remains of Arthur Hugh Clough*, 1865.
Fox, G. T., *Memoir of the Rev. Henry Watson Fox*, 1850.
Fremantle, W. R., *Memoir of the Rev. Spencer Thornton*, 1850.
Hay, J. C. D., *Lines from My Log Books*, 1898.
Hughes, T., *Memoir of a Brother*, 1873. (For record of Hughes, G.)
Hughes, T., *Tom Brown's Schooldays.*
Lake, W. C., *Memorials of William Charles Lake*, 1901.
Mackay, T., ed., *The Reminiscences of Albert Pell*, 1908.
Oswell, W. E., *William Cotton Oswell*, 1900.
Stanley, A. P., *Life of Dr Arnold.*
Temple, R., *The Story of My Life*, 1896.
Trotter, L. J., *Life of Hodson of Hodson's Horse*, 1901.
Woodward, F. J., *The Doctor's Disciples*, 1954. (For record of Gell, J. P.)
There are also two anonymous accounts: *Rugboeana*, by an Old Rugboean, Lichfield, 1875; and *Recollections of Rugby*, by an Old Rugboean, London, 1848; but whether they are distinct from the seventeen above is uncertain. In any case they agree with the main findings indicated here, and the last named agrees markedly with H. H. Dixon. Comments by Old Boys are occasionally to be found in books elsewhere.

See also:
Prothero, R. E. and Bradley, G. G., *The Life and Correspondence of A. P. Stanley*, 1893.
Mack, E. C. and Armytage, W. H. G., *Thomas Hughes*, 1952.

2. Arbuthnot, Hay, Lake, Mackay, *Parents' Review*, Temple.
3. Selfe, S., *Chapters from the History of Rugby School etc.*, 1910, pp. 63-64.
Wymer, N., *Dr Arnold of Rugby*, 1953, p. 8.
4. Selfe, S., op. cit., p. 111.
5. e.g. Lake, W. C.
6. Hughes, T., *Memoir of a Brother*, p. 20.
7. The claim to have cured bullying in particular houses for a period at least is made for George Hughes, Hobson and Temple, the last occurring after Arnold's death. This may indicate an improvement in the last two or three years of Arnold's life, yet there is ample evidence that bullying of the same degree and kind continued for some time after Tait arrived (see later).

8. Oswell, W. E., op. cit., p. 143.

9. Fox, G. T., op. cit., p. 72.

10. Prothero, R. E., and Bradley, G. G., op. cit., p. 68.

11. ibid., p. 67.

12. ibid., p. 57.

13. ibid., p. 68.

14. *Q. Journal of Education*, 1835.

15. *Northampton Herald*, 23 Feb. 1833.

16. Stanley, A. P., op. cit., ch. 3.

17. Mackay, T., op. cit., p. 275.

18. Stanley, A. P., op. cit., ch. 3.

19. Prothero, R. E. and Bradley, G. G., op. cit., p. 69.

20. There are no full records of the boys who were expelled, except George Hughes. It is to be presumed that they would have painted a much less favourable picture than the others.

21. *Northampton Herald*, 26 Dec. 1835. For Arnold's reactions see the letter quoted in ch. 3 of Stanley's *Life* beginning with the words, "I do not choose to discuss the thickness of Praepostors' sticks . . .".

22. Palmer, R., (Earl of Selborne), *Memorials, Part I*.

23. Bloxam, M. H., *Rugby*, 1899, p. 83.

24. Bloxam, T. L., *A Companion to the Rugby School Register, 1675-1870*, 1871.

25. Oswell, W. E., op. cit., p. 44.

26. Lake, W. C., op. cit., p. 17.

27. For the full story see Bloxam, T. L., op. cit., p. 40.

28. Collingwood, S. D., *The Life and Letters of Lewis Carroll*, 1898, p. 30.

29. Melly, G., *School Experiences of a Fag etc.*, 1854. There has been confusion over Melly's date of entry. His book, written anonymously, is evidently incorrent on this particular point. W. H. D. Rouse, in his *History of Rugby School*, records him as entering in 1830, and draws conclusions accordingly. In fact, according to the carefully documented *Rugby School Register*, Melly entered in February 1884. As this Register is a chronological document there can be no doubt of its correctness. His book therefore describes the early years of Tait and not of Arnold.

30. Pearson, C. H., *Memorials*, 1900.

31. Arnold's letter, dated 28 Sep. 1828, in Stanley's *Life*.

32. Percentages for successive years are:

Wooll (1807-27)—3, 6, 4, 7, 4, 3, 6, 7, 5, 5, 1, 1, 4, 6, 2, 9, 9, 6, 3, 0, 3.

Arnold (1828-42)—2, 3, 7, 5, 6, 7, 3, 4, 7, 6, 1, 8, 3, 5, 8.

AN EXPERIMENT IN THE TEACHING
OF THE HISTORY OF EDUCATION

by J. D. BROWNE

Principal, City of Coventry Training College

WHEN planning the three-year course it will be necessary to examine each part of the traditional curriculum of the training college and to assess its value for the future. What will be the place of the history of education in the future scheme? Judging from the questions set in the common written paper in Education in this Institute, the history studied is largely the development of educational ideas as seen in the theories of thinkers such as Rousseau, Froebel and Dewey. Such a study, if based on reading the original work of such men, related to their own background and compared with contemporary theory and practice, can be illuminating. With more time at our disposal for reading and discussion it may be possible to make it a genuine introduction to the evolution of a philosophy of education; or it may still remain an approach suitable only for the few.

The history of education should also be concerned with building up a picture of the background of the present educational system. Monographs and general histories published since the Second World War have provided material from which the student can enrich her understanding of the relationship of educational measures to the social history of recent times, but to the student who has little experience of historical studies the subject can remain an arid affair of Acts of Parliament and official pronouncements on educational policy. The problem is to find a way of active participation on the part of students which will deepen their understanding of what the present schools have grown from and have, to some extent, overcome. If their conception of education in the immediate past becomes real enough, it may well help to put some of our present aspirations and beliefs into perspective.

In pursuit of this aim, the students of this college are encouraged to make a study of a school log book; or to trace the educational history of someone of their grandparents' generation; or to investigate

the history of a school known to them, preferably one whose official history has not been written. Collections have also been made of specimens of work, text-books and documents such as pupil-teachers' indentures. The results have been most illuminating for the period 1880-1902, because that is the period when personal memory tends to coincide with the fullest log book entries, but we have not confined ourselves to this period. The material refers mostly to the elementary schools, but interesting points about the education of girls and the development of higher grade schools have also been collected.

The records are generally work-a-day, but occasionally there is a more sensational entry or memory. Thus in a log book of 1874 we find: "On Monday morning, Mr Matthew Arnold inspected the school. There were 78 children present, the number being low owing to the wet weather." And one student records: "At the age of twelve my grandmother won a Clothworker's scholarship (of which there were only three in the whole of London) to the North London Collegiate School. The Headmistress was at the time Miss Frances Mary Buss, and the Headteacher was Miss Sophie Bryant, D.Sc. . . . One afternoon was devoted to Swedish drill which was taught by Miss Bergman, who afterwards started her own college."

A great deal of the material collected provides instances which illustrate the general problems of the day, and makes it clear how legislation affected particular schools. One must not expect much general comment in a school log book. The instruction was that "No reflections or opinions of a general character are to be entered in the log book". When a personal complaint is recorded it is disapproved of. We find, for example, two entries: "Mr L. of — Hall visited the school and was very rude to me in front of the children. He must have lost his temper"; and: "Mr L. came again and apologised to me." Both entries were cancelled by the school managers.

From log books, personal accounts and photographs we get a picture of the typical schoolchild and school building of the day. A little girl is introduced to her first school, "dressed for the occasion in her clean pinafore, black stockings, and button-up boots and accompanied by her elder brother and sister. She was helped over the fields and stiles to the schoolhouse situated at the bottom of the hill approximately four miles from the row of cottages where she lived." The clothes of the boys are less readily recalled, but photographs show them wearing Norfolk jackets and stiff collars. In the north both sexes often wore clogs and the girls from the Lancashire and Yorkshire towns might wear black shawls if it were cold. Many

of the children appear to have been overclad but the recollections of those who were brought up in poor districts, for instance in Bermondsey, indicate that their schoolfellows were in rags. We are given a description of a school which "consisted of three classes, all held in the same room, the noise of each battling gallantly against another, until the headmaster blew his whistle for silence. The walls of the school were painted a dark brown and the windows were set high in these walls so as not to afford any distraction." Sometimes the room for the whole school was very small, especially when the foundation dated from the beginning of the century. One such classroom was twelve feet square and ten feet high; there was also a gallery adjoining, and the teacher's quarters were above. The new board schools which began to appear after 1870 were generally more spacious, but the arrangements for the children were much the same. "The children", we are told, "sat on long forms, eight to one form, and had a shelf under the desk top. On this shelf they kept the slates and slate pencils that were used for most lessons. At the side they kept a small tin with a piece of rag in it which they used to clean their slates." This was in a highly organised school: other scholars record more primitive methods of cleaning slates. No care was taken to fit the child to the desk, so that we learn: "E's feet did not touch the floor until she was eight." Most pupils of those days remember the lavatory accommodation with a shudder. One recalls: "the antiquated earth closet and the total absence of washing facilities gave rise to much typhoid fever. I remember my naturally clean and tidy disposition rebelling against the appalling conditions."

The most prolific entries in the log books concern attendance, and illustrate Kay Shuttleworth's contention that the great achievement of the schools was that "children have of late years, been netted in shoals, got into schools, tamed and in some degree taught". These entries also provide a commentary on social conditions. The reasons given for poor attendance are so varied as almost to resist classification. Illness is, of course, the most common, as may be seen from three typical examples: 1870—"Poor attendance this week; small-pox in the neighbourhood"; 1886—"Opened school after having been closed since September by the Sanitary authority owing to the prevalence of measles"; and 1889 (same school)—"Progress and attendance not so good because of the epidemic".

The weather is often blamed and sometimes causes the teacher to give up the unequal struggle. We find such entries as: "The register was not marked to-day because so few children came to

school owing to the inclemency of the weather"; and: "A poor school to-day owing to the weather—not worth keeping on". These entries are confirmed by the memories of those who were pupils at the time. One remembers: "We did not attend school in snowy weather as we had no proper shoes." Some reasons for non-attendance are connected with the local employment position or with local custom. There are records such as: "Pea-picking; many absent to mind baby or help mother"; "Attendance has fallen as many of the boys have to pick coal"—during a strike; 1880—"the attendance for the week has not been so good owing to the carrying of the corn"; 1884—"a large number of absentees as it is Collop Monday—this is the custom of going to beg slices of bacon, collops, from house to house". Local events, the races, a circus, a menagerie or, more serious, a visit from Mr Gladstone, also caused the children to stay away. Some head teachers optimistically tried to improve attendance by introducing new work, and one records: "In order to improve attendance, I am introducing a new subject, History." More commonly, part of the schoolpence was remitted if attendance was regular, and later there was a greater reliance on the investigations of the school attendance officer. "One prosecution", remarks a head grimly, "results in improved attendance all round."

Many personal memories refer to the payment of schoolpence. The fee generally varied according to the number in the family. A student records: "My grandfather had two elder brothers. These two brothers paid twopence a week but my grandfather, because he was the third, paid only a penny. He often thought, he said, of the joys he could receive if only he did not have to go to school and had those five pence to spend, but being strongly obligated to his father and respecting him with a great esteem he always found himself paying, but with reluctance." The teacher often records some difficulty in collection. A log book entry for 1867 states: "I had to be very strict with the children over paying their school money owing to the flatness of trade"; and another: "A woman abused me because I declined taking her child for a penny a week—says she will go to the Vicar—who will demand threepence." Some parents are shown as anxious to get their pound of flesh, and one record of a boy put in a lower standard for bad conduct is followed by another to the effect that his mother has come to complain that she is not getting her money's worth. Schools were often graded in people's minds according to the price paid. A grandmother "remembers the way in which her family used to make fun of her cousins who

lived in London and went to a sixpenny school. Where the fee was fourpence or more per week the school was considered quite classy." The coming of free education is often remembered by the children with relief or even rejoicing, and even the powers that be occasionally saluted the new era. One log book records in the year 1891: "The Vicar gave a half holiday to commemorate the new Free Education."

One of the most complicated subjects to follow, from a study of changes in legislation, is the gradual lengthening of school life. Certainly it often began early. A typical recollection is: "A, who was two when E. was seven, was carried to school every morning by Amy, the eldest daughter. The teacher used to put him to sleep on two chairs at the side of the room." One school had a few cradles in its equipment, perhaps to provide school places for the youngest children. By the act of 1876 no child was to be employed between the ages of ten and fourteen unless he had obtained a "Labour Certificate" from an H.M.I., certifying that he had passed standard IV in the three R's or had made 250 attendances in each of five years. The day of the "Labour Examination" is often remembered by old people as the day when they secured their passport to adult life. A student relates: "Before they could leave they had to take an examination or a series of short tests known as 'the Labour'. Grandma always refers to the day as the most exciting of her life at school. The group of children were driven on a wagonette for a matter of some three-and-a-half miles to Wigan . . . it was the first time she had been outside the village. She wrote an essay on 'The stag and his horns' and passed." In 1893, the age at which children could be wholly or partially excused from school was raised to 11, and in 1899 to 12. We are told: "When my uncle was twelve years old, he went half time to work. He worked 20 hours in one week, and 35 hours in alternate weeks. The 20 hours was made up of five afternoons of four hours each, after having attended school in the morning; the 35 hours was made up of five mornings of six hours each, and five hours on Saturday. When he went to school in the afternoon he often fell asleep." The half-timers with some justification sometimes put up resistance to further education. A log book entry for 1895 states: "The half-timers of 13 want to know if they are exempt from passing standard V by being at school for five years"; and: "There are few attempts to pass standard V as pupils apply for qualification by attendance." Those who attended school full time might receive higher grade education, and there are references in

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some log books to the teaching of such subjects as science and technical drawing to earn the grants of the Science and Art Department. Where advanced studies were not available there is an occasional mention of a child leaving to go to a higher grade school. A few selected children might sit for a scholarship offered by a local grammar school, "the papers illegibly stencilled, including an essay, grammar, parsing and analysis, the geography of Britain, world geography, and historical questions stretching from the Dark Ages to Queen Victoria". It was not until after 1907, with the establishment of the qualifying examination for entry into the fee-paying grammar schools in receipt of government grant, that the child from the elementary school had any real hope of continuing his education by a regular path without great expense to his parents, and this is already in the period when the records we have studied are rather thin.

The period for which we have gathered the fullest information is dominated by the "payment by results" system. The passage from standard to standard, though it might only mean the passage from one bench to another physically, was attended by tremendous effort, learning by heart, and examination. Never were children and teachers examined so much by so many: by the visitors, the vicar, the managers, the diocesan inspector, the H.M.I. The government inspectors' report had to be recorded in the log book. The following entries illustrate this state of affairs:

1870—The school has improved under the present mistress.
My Lords have ordered a deduction of one tenth from the grant as the ninth supplementary rule is not observed.
1872—Reading—54 at standard 4, 2 failures.
Writing—39 at standard 4, 4 failures.
Arithmetic—24 at standard 4, 32 failures.
1873—Reading for dictation fair, arithmetic improved but children failed in the extra subjects.
1881—Reading very fair, dictation good. Arithmetic fair, discipline satisfactory. Miss E. has not a fair chance with these children as they only remain with her from age 5-6 years.
1885—H.M.I. is unable to report that the staff is efficient within the meaning of the article.

The direct dependence of the teacher's salary on the children's performance is sometimes brought out, as when we read: "The Rev. H— came and paid my share of the grant, being one-third of the sum earned by the infants."

Sometimes the inspectors castigate the managers rather than the children and teachers. Two extracts from reports are: "I have recommended the highest grant with some hesitation, [the favourite official phrase of the day]. If the average attendance of the infants continues to exceed the accommodation provided the grant will be seriously endangered"; and: "The premises provided by the managers are not large enough for proper infant training and the 6/- grant is again recommended with great hesitation." Besides the regular visits of inspectors, of which notice was given, and for which the children could be instructed to wear their clean pinafores, a "visit of surprise" might be made. An inspector records: "Paid a visit of surprise to the infant school and found the registers correctly marked and both teachers at work according to the time-table." It is perhaps no wonder that the inspectorate has even now a certain legacy to live down. Certainly no-one expected the teacher to be able to get on with the job without constant supervision. Recollections of the inspectors' visits show that they do not seem to have caused undue disturbance amongst the younger victims. A student reports that one of her informants "recalled the visit of one of the school inspectors because he resembled the then Prince of Wales, and described how he was made to sit back to back with another boy while he answered questions put to him."

Some indication of changes in the curriculum over the years can be obtained from the school log books. One school was found to have a fairly continuous record of what was taught from the time when the syllables of the Lancastrian reading scheme were used, to the recent attempt of the pupils to study the development of the town, which resulted in such a successful exhibition that it attracted a good deal of notice in the press. The different ideas of education exhibited in this instance were quite striking. Most of the school time in the 1880's was spent, according to log book and personal memory, in drill in the three R's, with learning by rote the only method. Many hours were devoted to needlework, of a very exacting nature, in some cases for boys as well as for girls. Religious instruction was given every day although this played a much bigger part in the church schools than in the board schools. Lists of object lessons for the year are to be found entered in the log book under such headings as "Animal Kingdom", "Vegetable Kingdom", "Mineral Kingdom", "Common Objects". One teacher tried to assert her independence, or perhaps she only distrusted her own powers, and daringly substituted "the camel, the whale, and fish",

for "The year and day, divisions of the year, the sun". The H.M.I. wrote: "All thirty object lessons must be taken and none omitted." There are traces of changing methods. The practice of chanting meaningless syllables, common in the Lancastrian schools, was gradually dropped, and it can be seen from the requisition lists that readers were gradually adopted which, poor though they were, did at least make some sense even for the beginners. Sums were generally written on the blackboard or on a sum card by the teacher, and this is not surprising when one reads some of the arithmetic books. One, published in 1848 by Richard Chambers, has the contradictory objects of "simplifying the rules of Arithmetic and at the same time implanting useful information and generous sentiments in the minds of Youth". The author thinks nothing of breaking into verse in the middle of what he calls "promiscuous examples". The sum worked by T. Timerick, whose arithmetic book is in Coventry archives, is rather startling: "The prophet Daniel, it is computed, was thrust into the Lions' den in the year of the World 3394, how many years is that since, allowing this to be 5844 years since the creation?" In reality, however, this is a simple question, and requires a lower reading age than some asked in Chambers and other books which students have examined.

Evidence of the impact of new educational ideas is seen from time to time. An H.M.I. is pleased with musical drill; "natural history" is introduced by a new teacher but it turns out to be our already old friend, the reindeer; children go for nature walks, one party, so as not to waste time, taking their song books and singing all the way back. The influence of Froebel is seen in paper folding, stick laying and kindergarten periods, with innumerable misapplications. One enthusiastic teacher at the turn of the century is always trying out new methods and although she is rather full of phrases, the inspectors report that here is an excellent girls' school. The log book records: "1900—Gave the new standard V a lesson on fractions, demonstrating it by small pieces of paper"; and: "1903—gave a lesson in Geography to teach that names should not be mere words but places". In this school, and in a few others, expeditions were regarded as a means of education. Hints of future controversies appear. An H.M.I. reports in 1919: " 'Free work' is under way at this school and the teachers have taken great pains to get as much information about it as possible." (They had all been to visit a Montessori school). The next H.M.I. reports: " 'Free work' here— a reckless venture".

Progress was no doubt slow because of the inexperience and lack of training of many of the teachers. The pupil-teachers are referred to in many log books and indeed appear to be the butt of many headmasters. We find entries such as:

1863—The pupil-teachers failed to say their lessons and were not ready to teach that day.

1877—It is now ten minutes past nine. M.A. and M.B. have neither of them made an appearance. M.A.'s time is 8 a.m.

1890—Miss M. had the afternoon off for the ball and I had all five standards under my charge.
[Next day]—Miss M. arrived at 10.15—the effects of the Ball, I suppose.

1899—Notwithstanding repeated complaints to the board, the pupil-teachers persist in coming late to their lessons. This morning tho' 20 minutes late, I observed them coming as though they had plenty of time to spare.

In some schools they earned a more favourable report, perhaps because of their better qualities, perhaps because the head was more capable of helping them. A school manager reports: "Visited school at 7.30 a.m. and found the three pupil-teachers at work under the tuition of Mr P., the subject being the History of England under Charles I, a subject Mr P. appeared to be acquainted with most thoroughly. The pupil-teachers seemed to be very ready in interpolating remarks and answering questions". It certainly showed zeal at that hour. Time was sometimes given for study, and a headmaster reports: "In accordance with the resolution of the Board I have made arrangements for each pupil-teacher to have forty minutes on four afternoons a week for private study." The pupil-teacher was also helped by criticism and example. Typical records are: "P.T.M. —gave a very nice lesson on the Geography of Switzerland"; "the pupil-teachers took a great interest in using the Look and Say method which I explained to them"; and: "To-day I gave a Model lesson for M.'s benefit." Apparatus was used, and we learn: "A pupil gave a good lesson on Mountains using a large board of sand for illustration." The removal of the pupil-teachers to a special centre for their studies is referred to in several log books and in one case is said to be working well. If the pupil-teachers safely passed the years of their apprenticeship they sat for the Queen's Scholarship which enabled them to go to a training college. Many of them dispensed with this further period of training, however,

and are recorded as taking up posts as assistant teachers without delay.

Several of the personal histories recount the views of the pupil-teachers themselves. We are told, for example: "Pupil-teaching was extremely hard work as Amy soon discovered. She had to teach all day in school and then study all night. When she came home from school there were lessons to mark and work to prepare for the next day, things such as needlework had to be made ready for the children and any cutting out had to be done by her as the children were never trusted to cut out for themselves." Nor was life in the training college very easy. One informant describes his college life: "First lecture at 7.15, chapel at 8, breakfast at 8.30. Accommodation was in dormitories, with no heating, no lights except candles, and an old tin bath filled with a jug. There was a master on dormitory duty who if a student was late used to lock him out. If a master did this frequently the students showed their dislike by grumbling audibly at meals." A student of to-day describes the experiences of a relative who, after working for a year as a student teacher, entered a women's training college. Methods had made some progress but the students were only allowed out between two and four as they had lectures every evening. They felt rather depressed because they incurred a great deal of expense on school practice and then were told that they would have difficulty in finding a post. The Birmingham authorities were the first to visit the college to interview the students, and out of them all selected only one. *Autre temps, autre moeurs.*

A favourite theme in the personal reminiscences is that "we had discipline in those days", and the methods of obtaining it are often described with gruesome detail. The pattern of punishment is etched clearly on many minds. We are told that "Anyone who was caught talking was brought before the class and whipped with a leather tawse. This was a long strap with leather fingers at one end, which was supposed to be used for hitting the boys, but the master frequently used the other end which was knotted for hanging behind the door." And again: "Monday morning was whacking morning. No sums right meant four handers, one sum right three handers and so on." Lack of ability was not distinguished from unwillingness to learn: "If you did not know your tables you were considered to be bad." Some ingenious forms of punishment were in use, particularly for the girls, such as thimble tapping, or causing the culprit to stand in a corner holding slates over her head until her arms felt as though they must drop off. This seems to have been reserved for serious

offences such as following the hunt and forgetting to return to school until 3 p.m.

Many log books show almost an obsession with the idea of punishment but no doubt the children were very wild in some areas. One entry declares: "A violent quarrel between two older girls led to a free fight." Parents came up to school to complain if their children had been beaten, especially if it were the pupil-teacher who had ventured to inflict the chastisement. Other parents on hearing that the child had been punished at school repeated the dose for good measure. With the passing of time heads became more humane and more cautious as parents asserted their rights more frequently. "Cautioned a master about boxing the children's ears", writes one head. Mr X, another master, never hits the children on the head because he attributes his son's deafness to this treatment. The H.M.I., too, begins to make a stand against too severe corporal punishment. One reports: "Within three minutes three cases of caning, one a girl. The cane should not be freely used and never on a girl." But this entry is for 1902 and previously the remark is more often than not: "The discipline is not strict enough." No doubt the harsh discipline accounted in some measure for the willingness of many children to leave school and the unhappiness they felt when they were there. It is necessary, however, not to read into the accounts the attitude to punishment of a later day.

It would be a pity to end this account on a sombre note, and in fact there are many accounts of high days and holidays in these log books. The school treat is ubiquitous and appears in many guises. We learn of one school that "Once a year Lord Leigh invited them to Stoneleigh Abbey, sending a horse-drawn wagon to fetch them and bring them back." Sometimes the entertainment was more homely, as when "the Vicar's birthday was celebrated to-day and all the children were given gingerbread and biscuits". Besides the occasional note of festivity, there is the satisfying evidence of the devotion of many teachers which shines through the trivialities of the log book entries, and of the interest of at least some of the children who were put through the mill in National school and board school. On these enthusiasms, in a changed social climate, the whole system of national education was to be built.

These illustrations are some choice plants from a rich field which training college students are quite capable of cultivating. The value to them lies in collecting the material from its source, whether log book or grandmother, of weighing up its authenticity and limitations,

and arranging it in such a way that it illustrates, and in some cases modifies the general picture that they already have in outline. As the material collected by any one person may not be very full, a small exhibition is generally arranged in addition to the individual studies. It consists of text-books, pictures, needlework, documents, and extracts from different log books and accounts arranged under headings such as "School Attendance", "The Lengthening of School Life", and "The Inspector Calls", which, in fact, form the skeleton of this article. Discussion has arisen on many topics, as for example, "the rôle and status of the teacher", "influences affecting curriculum and discipline", and "the character of the school population then and now". These could form the basis of solid sociological study, but they cannot be pursued very far owing to shortage of time. Such a point would hardly be worth making here did it not illustrate the dilemma of training college work at present; that is, in order to make the work authentic and to secure the students' active participation, one must encourage observation and first-hand study, as well as reliance on the spoken and written word of others, but in so doing one robs the student of time to reflect on the material collected. It is this dilemma that we hope to solve by the longer course, in this field as well as in others.

GROUP DISCUSSION IN ITS RELEVANCE TO TEACHER-TRAINING

by H. J. HALLWORTH

Lecturer in Education, University of Birmingham

1. INTRODUCTION

THERE has been during recent years a considerable development of group work in training colleges, and a significant part of this development has been the increasing use of group discussions, particularly in the "professional" courses. Such discussions are symptomatic of a general reaction against the aridity of mere lecture courses which were devised during an era of rapid expansion as society and education became democratised; they are also indicative of a new concept of education. Their purposes are therefore several.

2. THE AIMS OF GROUP DISCUSSION

An important function of discussions is to eliminate what White-head long ago termed "inert ideas". In a typical situation it is usual for a tutor to open a discussion period by inviting questions arising from school practice or from lectures in the professional courses. He will then attempt to follow up new ideas, explain any which have not been fully understood, and develop their implications by giving illustrations and by inviting students to contribute instances from their own experience.

Further, however, the object of group discussions is to teach by example. If we follow Lippitt's distinction between "democratic", "authoritarian" and "laissez-faire" methods of control (1), the object is to establish a "democratic" situation for the teacher in training, by obtaining from him responsible contributions to the course. The expectation is that he will then create similar democratic situations when he is himself engaged in teaching. Several assumptions are being made. In the first place, it is assumed that "democratic" teaching situations are desirable. This is obviously a matter of faith; it is a matter of the principles which underlie all our educational practice, and as such bears upon an issue which is fundamental. Since philosophy of education is not at present our concern, however,

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we may simply affirm the belief that such methods of teaching are to be approved. Another assumption is that experience of democratic group discussion leads to an expectation of democratic relationships which is carried over to other situations. This may be asserted as a matter of common experience and is often a matter of emphatic conviction. It is also susceptible to some degree of rigorous verification and such transfer has been demonstrated experimentally. Lewin and Bavelas (2) have shown that a democratically run course for children's supervisors had the effect of making the supervisors themselves adopt more democratic methods of controlling children. It is concluded that a democratically run course for teachers in training will likewise lead them to adopt democratic methods of controlling their classes.

A third aim of group discussions has already been implied. It is to use the group as a medium to change students' thinking, so that they may accept certain attitudes and bodies of knowledge offered in the lecture courses. The question arises whether thinking is more effectively changed by lectures or discussions. Again, this matter may be verified empirically, and there is evidence that discussion can be superior. Bavelas (3) found group decision by factory workers was effective in changing output. Coch and French (4) reached a similar conclusion. Willerman, also Radke and Klusirich, found that discussion was more effective than lectures in educating housewives and factory workers. Lewin (5), reporting these findings, indicates that discussion was between two and ten times as effective as lectures in obtaining a change of behaviour. Cartwright (6) concludes that very little permanent change is produced by mass media such as lectures, but group discussion holds greater promise.

3. Some Conditions for Effective Discussion

What are the conditions in which group discussion is most effective in changing students' thinking? Certain tentative suggestions may be made in the light of the above inquiries. The group must have a sense of oneness. It must have developed certain "norms" (7); that is, it must have a common way of thinking, common values and a certain stability of structure before it may be regarded as an organised whole with some control over its members, the constituent parts. Such development is slow. Discussion groups formed at the commencement of a college course have no sense of unity; it is therefore desirable that the personnel and leadership of a group should remain fairly constant for a considerable period. Some apparently

trivial considerations are important. For example, the group should sit in a circle so that members may see each other and have the advantage of all those subtle means of communication which assist in the establishment of norms.

Further, this sense of oneness should extend as between leader and group members. Lewin (8) has suggested that the distance between teacher and student can impose a limit upon the effectiveness of teaching. Homans (9) has made a similar observation. Preston and Heintz (10) found that groups in which leaders participated were more effective in changing the thinking of their members than were groups in which leaders only supervised. The leader must not emphasise his authority as deriving from the formal organisation of the college. (His chair, for example, should not be on a platform or behind a table, but in a position comparable to that of other group members.) The leader must, however, be accepted as such by the group. His authority must derive as far as possible from the face-to-face group, but he must have authority. Polansky, Lippitt and Redl (11) found that the greater the prestige of a group member in the eyes of the group, the greater the influence he could exert and the more effectively he could change the thinking of others.

It is obviously the duty of the leader to make the group attractive, both technically, by ensuring that members have a clear appreciation of the goals of the discussion programme and confidence in the possibility of progress towards such goals; and socially, by ensuring that individual members find satisfying personal relations inside the group (12). The leader must also maintain the prestige of the group against any possible competing groups (for example, groups in other subjects), and must defend the interests of the group and its members. He must, in effect, ensure that members feel their "living space" inside the college is enlarged by belonging to this group (13).

Any attempt to change the thinking of members of the group must take account of existing group norms and of the physical and social environment. The kind and degree of change that is possible is determined by such elements. Further, the leader must retain his own freedom of movement inside the group, and must avoid being fixed into a rôle which he does not desire. He must therefore possess adequate information regarding the group situation, and must have considerable skill in understanding and using varied means of communication inside the group, in order to initiate appropriate activity.

4. THE IMPORTANCE FOR TEACHERS IN TRAINING

It is, however, not only the leader who must have certain skills of group management; and here we arrive at another object of group discussions in the training college. A most important task is to educate the student in such skills. Teachers are concerned with individual children who are members of school and classroom groups, each with its own set of norms. Evidence to this effect is to be found in the *Studies in the Social Psychology of Adolescence*, edited by Fleming (14), and has been given elsewhere by the present writer (15). Such groups have an important educative influence upon their members and may go far to determine the effectiveness of the lessons delivered by the teacher. Moreover, for most day-to-day purposes teachers have to deal with groups rather than individuals; and one of their principal tasks is to build up groups holding those values which are considered desirable.

A teacher is also a member of a staff group, whose structure and values are of importance both to himself and to the boys and girls under his care. Jaques has indicated the importance of staff relations to the general efficiency of a factory (16). Dang has shown that they are of equal importance in a school (17). The student should therefore be given any available training which will assist him in the quick appreciation of group situations, and which will give him some of the tools he will require in dealing with them.

5. SUGGESTED USE OF INTERPRETATIVE GROUP DISCUSSION

This very necessary training has in the past been left almost entirely to extra-curricular activities and to chance (18). My suggestion is that it could be given by means of a modification of the technique of interpretative group discussion. When this technique is used for therapeutic purposes, the initial leader-follower structure of the group is broken down because the official "leader" at first refuses to lead. This refusal to accept the rôle of leader commonly throws a group into some confusion, and produces attempts by other members to create alternative structures with a substitute leader. When this process has continued far enough for it to be recognisable by members, the real leader can resume his rôle for a time, indicate what is occurring, and withdraw once more (19).

Several features of this procedure may be noted. In the first place, there is an originally assumed structure of leader-follower, and the dynamic for structural change is provided by the withdrawal

of the leader. From time to time, however, the leader resumes his position in order to give interpretations. There are effectively, therefore, always two modes of organisation available to the group, each serving a different purpose. In one of these the leader retains his position and prestige.

Now in a situation such as that described in a training college, it is not possible for the leader to withdraw to this extent. Training in skills of group management is not the only object of the discussions, therefore not all the time available can be devoted to this purpose. For other purposes it is essential for the leader to lead and to have the confidence of his group. It is also necessary for the group to feel that progress is being made in all aspects of the course; any neglect of this need would diminish the attractive power of the group and its influence over its members. In such circumstances interpretative group discussion may only be introduced from time to time; and the leader must depend, in general, upon some dynamic other than his own withdrawal to provide the changes in structure and other norms, which he is to interpret.

It is none the less both possible and desirable to introduce interpretative discussion as and when occasion allows; and there is reason to believe that in any group which meets regularly there will be opportunity for interpretation.

6. An Example

Illustration of this may be given from detailed recordings of the reactions of a group of training college students, who met three times a week over a period approximating to two college sessions, to discuss topics in the professional course.

(a) The First Year

This group consisted during the first year of nine women and fifteen men. In what may be termed the first phase of development throughout the autumn term, there was a leader-follower group. Discussion was at a formal level and there was little evidence of tension. The tutor was accepted without question as leader and did not attempt to withdraw from this position. The beginning of a change was noted in late December. Disappointment elsewhere in the college led Mr A. to attempt criticism of certain lectures concerning a subject other than Education. Having received an indication that such criticism was out of order in an Education group, he a few days later expressed his disgust with teachers in general,

condemning them as unworthy of recognition as a profession because of their low academic standards and their inability to organise themselves on a strong professional basis. It appeared that he was, in fact, criticising his fellow students, whom he considered to be failing to support him against authority.

In the second phase of development at the beginning of the spring term, there was an attack upon the tutor in his capacity as a representative of the authority with which some group members had come into conflict. Mr B., for example, invariably found cause for complaint regarding the comments written by the tutor on his essays. When the group, at its own request, answered the Bernreuter Personality Inventory, Mr B. obtained a heavy positive score on the F2-S scale, and immediately complained that the scale was useless because it made a wrong assessment of himself. (He was much reassured when told that the positive end of the scale denotes unsociability.) When students gave papers on books written by popular writers on education, their reports were followed by hostile and destructive criticism.

This second phase was marked by an apparent determination on the part of many in the group to express mistrust of, and antagonism towards, the tutor, the college course and the college itself. There were constant attempts to prove the tutor mistaken and ill-informed, and the course and modern education in general misdirected. On several occasions members of the group appeared to be expressing dissatisfaction with themselves because they were in a training college rather than a university.

Phase three was a brief, transitional phase, at the end of the spring term and the beginning of the summer term. Antagonism towards the tutor had been gradually decreasing as he failed to reply with hostility, and as the environmental situation underwent certain changes. The group adopted a leader-follower structure again. This was particularly noticeable during one meeting which took place in an unaccustomed and rather small room. A new and less formal physical environment assisted the developmemt of a different attitude. There was a good deal of spontaneous group laughter, and aggressiveness was directed in good humour against a student who read a short paper. When this was followed by a case history, given by the tutor, of a boy in a residential school for educationally sub-normal pupils, the group became an intimate circle united in sympathy for the boy and against his parents.

There followed several meetings at which papers were given by

both men and women. On each occasion the student gave the paper with far greater confidence, and any criticism was very moderate in tone.

There was also some discussion regarding the respective merits of the lecture and discussion methods. No criticisms were made of the latter, and when invited, none were forthcoming. Instead, there was what amounted to a vote of confidence by a general expression of the belief that "we learn quite a lot in these discussions".

Phase four followed quickly, soon after the beginning of the summer term, when the group split into two parts. The aggressiveness which had earlier been directed against the group leader was now directed against another symbol of authority, namely, organised religion.

Following a paper given by Mrs T., there was a discussion in which Mr A., Mr B. and Miss X. spoke against religious education and against organised religion, and were supported by six other members. They were opposed by a sub-group centred around Mr C., Mr D., Mrs T. and five others. Both sides were so intent upon the argument that they proceeded for some fifteen minutes, politely but decisively ignored a contribution which was then interposed by the group leader with the object of bringing the two groups together, and continued until the meeting had run five minutes beyond time.

This discussion was continued at the two succeeding meetings. Seating positions had become fixed early in the session, but at the third discussion on religious education several changes took place so that the members of each sub-group were sitting together. When the leader attempted to clarify the issues involved, Mr A. re-interpreted his remarks in order to place him in the opposite camp. The leader re-stated his explanation, whereupon Mr A. claimed him as a member of his own sub-group. It was difficult to remain neutral. Members of the group were unable to think on this issue except in terms of the two sub-groups.

At the following two meetings the leader attempted an interpretation of the history of the group throughout the session. The last few meetings of phase four were dealt with first, since they were fresh in mind and since aggressiveness in this phase was not directed against the leader. These interpretations were received in silence, and with a certain measure of agreement. The division into two sub-groups disappeared immediately.

In the interpretation of phase two the group was reminded of an

occasion on which, during this period of hostility, Mr E. had read a paper on Glover's book, *New Teaching for a New Age*. His manner during the reading had been hesitant and apologetic. He was torn between a desire to present a good paper and a desire to stand well with a group which was at that time very critical of any "new method" of teaching. Finally he stammered that "actually" he "thought the book was a lot of nonsense". Some discussion followed regarding the teaching of history in schools, and current methods were condemned by the group as killing any interest in the subject. The leader then asked Mr E. what he would do to make history more interesting, and he replied that, "of course", he "would use newer methods, such as were described by Glover." This incident was now used to illustrate the general group attitude in phase two, and the individual's need to conform to group norms. Reference to Mr E. was merely incidental, but he first denied the incident, then attempted to explain it away. Other resistance to interpretation was slight, but the interpretation produced a temporary reversion to a situation approximating that of phase two; and during the last few meetings of the session there was again some aggressiveness directed towards the leader by a few members, who did not, however, gain general support.

(b) *The Second Year*

At the beginning of the following session new groups were formed. Several members of the group from the previous year, including Mr A., Mr B. and Miss X., asked to be assigned to the group taken by the same leader. The new group consisted of seven women and ten men. Its development during the first term of the session again fell into four phases.

In phase one, during the first two weeks of the autumn term, there was a leader-follower structure similar to that in the first-year group already described, but lasting for a much shorter time.

Phase two was a brief period of re-organisation during which an attempt was made to unite the group, under the leader, in criticism of "authority" as represented by modern educational thought and by the college itself.

At the group's request there was a discussion on competition and co-operation. It was suggested that, by removing competition from the classroom, modern educational methods had caused a deterioration of standards in the adult world. Following, as it did, almost immediately upon a lecture on this topic, and judging from

the manner in which it was made, this suggestion was in effect an invitation to the leader and the group to co-operate against college authority. During the discussion few positive contributions were made and members were very critical of all that was said. Mr A. criticised Mr B. and Mr B. criticised Mr A., Mr F. criticised Mr B. and was in turn criticised by Mr G. Several members claimed acquaintanceship with trade unions and their procedure, emphasising the power of unions in such a way as to suggest that their intention was to associate themselves with an influential body acting against established authority. No criticisms were made of the leader.

It appeared as if members realised the group structure was changing and that while they wished to express dissatisfaction with authority, they wished to do this with the present leadership, and were rejecting upstart leaders.

Towards the end of the meeting, when discussion moved to youth clubs, there was a tendency to break into small sub-groups holding private discussions. The attempt to unite the group against an external enemy had failed because the leader did not accept the rôle assigned to him, and because the group was unwilling to accept any other leader. Since the earlier assumption of dependence had now been destroyed, members were thrown back upon a simpler organisation in smaller units. The behaviour of group members during this meeting was itself a neat commentary on the subject of competition and co-operation.

At the beginning of the next meeting the leader interpreted the behaviour of the group during phase one. He was heard in silence and with general agreement. When he continued with some interpretations of the group behaviour at the previous meeting, however, Mr A. immediately attacked the interpretation and expressed a complete mistrust of psychology in general. The meeting ended with a disagreement between Mr A. and Mr B. and a complaint by Mr A. that people had not been won over to his point of view.

The next meeting marked the beginning of phase three. Following the interpretation and his refusal to lead a fight against external authority, there was a brief period during which the leader was identified with that external authority and became the object of group hostility. The leader had deserted the group; the group now rejected the leader.

At the beginning of the meeting the leader spoke briefly of his purpose in giving interpretations, and indicated that more could be said regarding the discussion on competition and co-operation. He

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asked if the group would prefer to continue with the interpretation, or to examine certain diagnostic tests on which lectures had recently been given. Miss X. suggested that "we should wait and see what develops", and the group elected to examine the tests.

Copies of the tests were handed round. The decision to examine the tests had prevented further interpretation by the leader: it was now used as a basis from which to criticise him. The tests which had been requested were completely ignored.

The leader was asked, oddly enough, why so much attention was paid to tests; also why students had been given an intelligence test at the beginning of the term, and how the results of that test would be used. He replied that, so far as he was aware, results would be used only for purposes of obtaining means and standard deviations for the college, and certain correlations with other measures. He was then asked by Miss S. why, in that case, students had to put their names on the test. His explanation was largely ignored and it was asserted that when, during the previous term, students had answered a questionnaire on family size and structure, no names were required. The leader said that names had been given. A long and confused discussion followed, turning upon the question whether or not names had been given on the questionnaire, which was asserted to be a "scientific" investigation (presumably in contrast to the intelligence test, on which names had been given).

Finally, the leader asked how many members of the group were sure they did not put their names on this questionnaire. Of sixteen members present, three were uncertain or believed they had given their names, thirteen were sure they had not.

One may remark with reference to this phase in the development of the group, the hostility and suspicion shown towards the leader; the pains taken by the group to demonstrate that they were being misled; the efforts made to prevent the leader from putting his arguments lest he should prove to be correct; a faulty recollecting that the name of the college had been given on the questionnaire and that there had been no space for personal names; and finally, the for-getting, with emphatic conviction on the part of all except three members, that they had given their own names. (A later check revealed that there was no space on the questionnaire for the college name and that this had not been given; there was a space for personal names, which had been given by all students in the college.)

At the following meeting the leader interpreted part of the group behaviour during this discussion, instancing in particular the pur-

posive forgetting and mis-remembering of events. There was little overt resistance to the interpretation, but it was apparent that there was considerable passive resistance, and the attempt to make members aware of developments in the group could be considered only partially successful.

During the final phase, which followed this meeting, there came into existence a more stable structure, with the leader more readily accepted as such than at any other time. When comments and criticisms were invited at the end of the session, they showed an easy acceptance of the interpretations which had been given and an appreciation of this type of discussion. Further, they indicated the development of a more positive attitude towards educational theory in this group, as compared with other groups in which the normal pattern of discussion was followed with the same leader. Both Mr A. and Mr B., who had earlier been so hostile, became most co-operative; and upon completion of the course both expressed their thanks for the interesting and profitable discussions.

Space does not allow the quotation of instances drawn from other groups. It must, however, be added that following each interpretation, in order to make such matters more obviously relevant to a teacher's work, an attempt was made to invite reference to comparable school situations.

7. Conclusion

It is fully appreciated that many criticisms may be made of the use of interpretative discussion in a teacher-training college. It may be held that interpretations will arouse too much "transference" of emotion to the leader. It must, however, be emphasised that the interpretations are always related to group processes and that individuals are only mentioned incidentally. Further, such an objection overlooks the fact that, since "transference" is common in all teaching situations, teachers on the staff of a training college have long experience of dealing with it, and sufficient ability and good sense not to arouse more than they are able to manage.

It may further be objected that interpretations are subjective and arbitrary, that other interpretations are possible, and that the generalisations regarding group processes of which use is made have not been verified in a scientific manner. To this it may be replied that it is not a part of our tradition to wait upon scientific verification before we develop new skills; rather, the reverse is the case, that science grows out of established skills as a technique used to develop them

further. Also, although there have of recent years been numerous attempts to formulate a general theory of group relationships, from which indeed most of the generalisations are derived, there is at present no theory which is at all widely accepted. It is not therefore to be expected that we shall be able to make what may be termed synoptic interpretations in more than general and descriptive terms, and using *ad hoc* hypotheses.

The principal value of interpretative discussion, apart from the "working through" of a situation, would appear to be that by directing attention to group processes and increasing the individual's general awareness of them, it enables him to assess and control such processes more effectively in the future. In other words, it assists the development of skills concerned with group management.

The technique is one which justifies further exploration in this field, and can perhaps fill what appears to be a gap in present methods of training.

REFERENCES

1. Lippitt, R., and White, R. K., "The 'Social Climate' of Children's Groups", in Barker, R. G., Kounin, J. S., and Wright, H. F., *Child Behaviour and Development*, New York, McGraw Hill, 1943, pp. 485-508.
2. Bavelas, A., "Morale and the Training of Leaders", in Watson, G., *Civilian Morale*, Boston, Houghton Mifflin, 1942.
3. Bavelas, A., reported in Maier, N. R. F., *Psychology in Industry*, Boston, Houghton Mifflin, 1946, pp. 264-6.
4. Coch, L., and French, J. P. R., Jnr., "Overcoming Resistance to Change", *Human Relations*, I, 1948, pp. 512-32. Reprinted in Swanson, G. E., Newcomb, T. M., and Hartley, E. L., *Readings in Social Psychology*, New York, Holt, 1952, pp. 474-91.
5. Lewin, K., *Field Theory in Social Science*, London, Tavistock, 1952, pp. 229-36.
   Also Lewin, K., "Group Decision and Social Change", in Swanson, G. E., Newcomb, T. M., and Hartley, E. L., op. cit., pp. 459-73.
6. Cartwright, D., "Achieving Change in People, Some Applications of Group Dynamic Theory", *Human Relations*, IV, 1951, pp. 381-92.
7. For a definition of the word "norm" as used here see Newcomb, T. M., *Social Psychology*, New York, Dryden Press, 1950, p. 266.
8. Lewin, K., *Resolving Social Conflicts*, New York, Harper, 1948.
9. Homans, G. C., *The Human Group*, London, Routledge, 1951.
10. Preston, M. G., and Heintz, R. K., "Effects of Participatory vs. Supervisory Leadership on Group Judgment", *Jnl. Abnl. Soc. Psych.*, XLIV, 1949, pp. 345-55.
11. Polansky, N., Lippitt, R., and Redl, F., "An Investigation of Behavioral Contagion in Groups", *Human Relations*, III, 1950, pp. 319-48.

12. Mayo, E., *The Social Problems of an Industrial Civilisation*, Boston, Harvard University Press, 1945.

13. Jennings, H. H., "Leadership and Sociometric Choice", *Sociometry*, X, 1947, pp. 32-49.

14. Fleming, C. M., *Studies in the Social Psychology of Adolescence*, London, Routledge, 1951.

15. Hallworth, H. J., "Sociometric Relationships Among Grammar School Boys and Girls", *Sociometry*, XVI, 1953, pp. 39-70.

16. Jaques, E., *The Changing Culture of a Factory*, London, Routledge, 1951.

17. Dang, S. D., *A Study of co-operation in certain secondary schools*. Unpublished M.A. thesis, University of London, 1949.

18. *Education for Teaching*, No. 31, Feb. 1954, Journal of the Association of Teachers in Colleges and Departments of Education.

19. Bion, W. R., "Experiences in Groups", *Human Relations*, I-III, 1948-50.

SOCIAL CLASS AND INTELLIGENCE

by H. MADDOX

Lecturer in Education, University of Birmingham

1. The Association between Social Class and Intelligence

MANY varied indices of social class—occupation, income, area of residence, material possessions, style of living, personal associates and self-identification—have all been used at one time or another, either singly or in composite scales. It may seem strange that so abstract and complex an attribute as social class should have any influence on quantity or quality of intelligence. Composite scales of social status, embodying a number of factors, in fact are inferior to straight measures of parental intelligence and education in the prediction of children's intelligence. Parental intelligence and education are closely related to occupation, and it is therefore reasonable to expect a sizeable correlation between children's intelligence and parental occupation. Following the current usage of British sociologists, occupational category will be taken as the most convenient index of social class in this paper.

Many studies agree that there is a correlation of around 0·4 between the verbal intelligence scores of children and the intellectual status of their fathers' occupations. In terms of occupational averages, the children of professional workers consistently score about 15-20 points of I.Q. higher than children of unskilled workers. The children of professional workers average about one standard deviation[1] above the mean, the children of unskilled workers average, rather less consistently, about half a standard deviation below the mean. In the 1937 revision of the Binet test, for example, Terman and Merrill (1) found that the difference between the children of professional workers at one extreme and of day labourers at the other, was approximately 20 I.Q. points, with intermediate groups following roughly the intellectual order of occupations. Essentially similar group differences have been reported for the Moray House tests in this country (2), for the Wechsler Intelligence Scale for Children (WISC) (3), and for many other tests.

[1] The standard deviation is a measure of the scatter of scores about the average.

The group differences do not alter markedly with age and, according to Terman and Merrill, are as great at 2-5½ as at 15-18 years. Below the age of 2, however, no group differences have been demonstrated. This suggests that the differences are partly a function of the verbal content of the tests (there is a correlation of 0·83 at 11 years between total score on the Binet and scores on its vocabulary subtest alone). Nevertheless the generalisation may be made that a sizable relationship exists between the intelligence scores of children and parental occupation, irrespective of the type of test used, group or individual.

Traditionally, intelligence tests have been mostly verbal in content and it has become customary loosely to equate "intelligence" with score on a verbal test of intelligence. There is some justification for this, since, at least over the middle years of childhood, high positive correlations are obtained between tests of all kinds, both verbal and non-verbal. Most psychologists now agree, however, that it is usually more convenient to describe test performance not only in terms of general ability (g) but also in terms of group factors, such as verbal (v) and practical (k) ability (4). In the junior school the general factor (g) tends to swamp the influence of the group factors, although they are recognisably present, particularly v (5). Nevertheless if the group factor approach is accepted, generalisations about the relation between intelligence and social class need to be qualified, and more needs to be known about the social distribution of the various group factors.

2. SOCIAL CLASS DIFFERENCES ON DIFFERENT KINDS OF INTELLIGENCE TESTS

Although few studies have been made of the social distribution of different kinds of intelligence, it has often been noticed that non-verbal, and particularly performance, tests of intelligence yield smaller group differences than verbal tests of intelligence. In 1922 Burt (6) reported that Binet items varied in difficulty for contrasted status groups, linguistic and scholastic items being relatively easy for children of higher status, and perceptual and practical items for children of lower status. More recently Eells (7), contrasting the performance of high and low status children on current group tests, found that differences were greatest on verbal items, least on pictorial and geometric items. No constant trends were found between item types (opposites, analogies, etc.) when the form of symbolism (verbal vs. pictorial) was held constant. Status differences were

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2. Social Class Differences on Different Kinds of Intelligence Tests

Although few studies have been made of the social distribution of different kinds of intelligence, it has often been noticed that non-verbal, and particularly performance, tests of intelligence yield smaller group differences than verbal tests of intelligence. In 1922 Burt (6) reported that Binet items varied in difficulty for contrasted status groups, linguistic and scholastic items being relatively easy for children of higher status, and perceptual and practical items for children of lower status. More recently Eells (7), contrasting the performance of high and low status children on current group tests, found that differences were greatest on verbal items, least on pictorial and geometric items. No constant trends were found between item types (opposites, analogies, etc.) when the form of symbolism (verbal vs. pictorial) was held constant. Status differences were

greater for 13-14-year-olds than for 9-10-year-olds, probably due to the greater verbal content of the 13-14-year-old tests.

Jordan (8) found that the average I.Q. of the children of poor cotton mill workers was some 10 points lower on a verbal test (National A) than on non-verbal tests (Dearborn, Pintner). In the last war Vernon (9) reported that differences between occupational groups of naval recruits on Raven's Matrices, a non-verbal test, were less than those usually found with verbal tests. The WISC yields both a verbal and a performance I.Q. For ages 5-15 years differences between extreme occupational categories were greater on the verbal scale (I.Q. 111-95) than on the performance scale (I.Q. 107-95). Havighurst and Janke (10) found that, among 9-10-year-olds, those of higher status did better on all the tests in a varied battery, but again group differences were least on non-verbal and performance tests.

There is therefore general agreement that intelligence tests of all kinds are done better by children of higher social class, but that their superiority is less marked on non-verbal tests. This differential performance is found at all ages, but there is some, inconclusive, evidence that it is more marked with older children. The specific influences which cause this differential performance are obscure, but Eells thought the most reasonable explanation of most of his findings was that verbal items, especially, contain words and processes with which those of higher status would be more familiar. In other words, verbal tests have a "cultural bias", and the differential is mostly an artifact of varying opportunity for familiarity with verbal materials.

3. Procedure in the present study

In England verbal tests are much used for selection at 11+. Due to residential segregation, children of different occupational groups attend different schools. Any observed differential, therefore, might well be explained in terms of differences between schools in teaching and in amount of test practice and coaching. In this study the performance of different occupational groups was compared within school classes. It was possible to find an adequate social mixture only in the "A" streams of three church schools in residential areas of an industrial city. This restricted the range of ability.

The aim of the study was to examine the differences between the verbal and non-verbal test scores of children of high ability, coming from different occupational groups, but much more alike in material environment and style of living than would be usual in contrasted groups. Now, if the superior scores of children of higher status on

most tests are due to greater familiarity with verbal materials, it
might be expected that groups of children with the same schooling
and from homes of much the same material standard would score
equally well on tests of both types, or at least that group differences
would be very small. This should be particularly true in the junior
school where the influence of the general factor (*g*) is still paramount
over the more specific factors.

Two tests were used of equal length (100 items) and approxi-
mately equal difficulty: Schonell Essential B and N.F.E.R. Non-
Verbal No. 5. There are some differences in content between the
two tests, apart from the form of symbolism. The Essential is a
conventional test containing vocabulary, missing words, similarities,
analogies, series and problems, the items being intermingled and
arranged in increasing order of difficulty. The N.F.E.R. contains
four subtests: digit-symbol substitution, analogies, similarities and
series.

The tests were given in the order Essential—N.F.E.R., two
days apart, to three "A" classes containing about equal numbers of
boys and girls. The average age of the 109 children for whom com-
plete records were obtained was 10 years 4 months. There were no
significant differences between occupational groups in age or sex.

Only a crude occupational classification was possible since infor-
mation about parental occupation could not be obtained directly
from the children, but had to be gleaned from school records and
from teachers and attendance officers. Three occupational cate-
gories were used:

Professional (25) Doctors, lawyers, teachers etc., the criterion being possession of a recognised professional qualification.

White Collar (53) Clerks, sales representatives, retail business, and all others not classified as professional or manual.

Manual (31) The vast majority of this category were in skilled manual work—electricians, fitters, mechanics etc.

4. RESULTS

The mean scores of these three groups on the two tests, verbal
(*V*) and non-verbal (*N*) were:

	Professional n=25		White collar n=53		Manual n=31		Total n=109	
	V	N	V	N	V	N	V	N
Boys	83	80	80	77	78	79	81	78
Girls	83	79	81	73	79	80	81	75

The overall mean for V was 81, standard deviation 6, and for N 77, standard deviation 8.

The non-verbal test was evidently harder for the girls than for the boys. The differences between these means appear slight but a precise test reveals that the interaction between type of test and occupational class is significant. This is due mainly to the differential performance of the white collar girls, who score much higher on V than on N, and to a lesser extent to the manual boys and girls scoring higher on N than on V.

It is difficult to translate these results into I.Q.s since the norms for the Essential test are expressed in mental ages, and give mean I.Q.s that appear to be somewhat inflated. If it can be assumed that the mean I.Q. will be the same on both tests, however, the non-verbal mean may be accepted as the best estimate of this. Assuming, therefore, that a score of 81 on the Essential is equivalent to a score of 77 on the N.F.E.R. test, and that one item equals about 1 point of I.Q. over the range of ability involved, then the raw scores may be translated to:

	Professional		White collar		Manual	
	V	N	V	N	V	N
Boys	122	123	120	121	119	122
Girls	122	122	121	117	120	123

The professional children and the white collar boys score equally well on both tests. The white collar girls do better on V than N. The manual children do better on N than V. These results may also be expressed by reducing the raw scores to standard scores[1] and comparing the numbers who do better on V than on N with those who do better on N than on V:

	V scores greater than N scores	N scores greater than V scores
Professional	12	13
White collar	37	16
Manual	9	22

Thus there is a recognisable test pattern. The white collar children, more especially the girls, tending to score higher on V than on N and the manual children higher on N than on V. This is in agreement with previous work, and it appears that even over this restricted range of talent and among children of similar material environment, there are discernible differences in test pattern. This assumes, of

[1] A standard score is the difference between the score and the average, divided by the standard deviation.

course, that the Essential is a typical verbal test and the N.F.E.R. a typical non-verbal test, and that it is the form of symbolism that is responsible for the differences.

5. Interpretation and Conclusions

The most plausible explanation of these findings seems to be that the white collar girls of this age read more and develop verbal skills which help them in a verbal test of intelligence. The professional children and the white collar boys presumably do not develop these skills to such an extent. The manual children, on the other hand, appear to be slightly handicapped by lack of verbal skills. It would be equally possible, however, to explain their higher scoring on the non-verbal test as due to possession of a positive ability, perhaps practical ability (k). It is hard to see, however, how any life experience specific to the manual children, such as the development of more manual and peripheral skills in a craftsman's household, could influence performance on a paper and pencil test. Whereas the verbal influence is direct and comprehensible on tests which include vocabulary items, it is not so easy to understand the means by which practical skills might influence performance on a non-verbal test. It is possible, of course, that the maturation of different kinds of inherent abilities may be taking place, and influencing test scores. In fact the similarity of the superficial environments of the children would make this explanation plausible, except it would seem to indicate some kind of sex-linked inheritance of verbal ability, which seems unlikely, to say the least.

It seems best to conclude that, at 10 years, the influence of "g" is such that verbal and non-verbal tests will not produce very different results among children of high ability. Verbal tests, however, appear to give girls from white collar families a slight edge over children from craftsmen's families. It should be remembered of course, that "v" is by no means an irrelevant factor for the purpose of scholastic prediction, the aim of most tests not being to measure pure "g" but to predict future success. From this point of view "v" is in no sense an error score to be discounted, but a useful factor in scholastic prediction.

At the same time, the slight differences revealed do suggest that, where a verbal test is used for selection at 11 +, it will be easier for a white collar girl to reach a grammar school than a girl of equal "g" who is a craftsman's daughter. The craftsman's son is likewise slightly handicapped in competition for a grammar school place. If

the results of this small study should be confirmed, it is clear that the social composition of grammar school pupils would change slightly if non-verbal instead of verbal tests were used for selection.

REFERENCES

1. Terman, L. M. and Merrill, M.A., *Measuring Intelligence*, London, Harrap, 1937, p. 48.
2. Floud, J. E., et al., *Social Class and Educational opportunity*, London, Heinemann, 1956, p. 59.
3. Seashore, H., et al., "The Standardisation of the Wechsler Intelligence Scale for children", *J. Consult. Psychol.*, XIV, 1950, pp. 99-110.
4. Peel, E. A., "Selection for Technical Education", *Educ. Review*, IV, 1952, pp. 183-95.
5. Burt, C., "On the Relations of Educational Abilities", *Brit. J. Educ. Psychol*, IX, 1939, pp. 45-71.
6. Burt, C., *Mental and Scholastic Tests*, London, King, 1922, pp. 190-9.
7. Eells, K., et al., *Intelligence and Cultural Differences*, Chicago, Univ. of Chicago Press, 1951, pp. 51ff.
8. Jordan, A. M., "Parental Occupations and Children's Intelligence Scores", *J. Appl. Psychol*, XVII, 1933, pp. 103-19.
9. Vernon, P. E., "Variations of Intelligence with Occupation", *Brit. J. Psychol. Stat. Sect.*, I, 1947, pp. 52-63.
10. Havighurst, R. J. and Janke, L. L., "Relations Between Ability and Social Status in a Mid-Western Community. I. Ten-Year-Old Children", *J. Educ. Psychol.* XXXV, 1944, pp. 357-68.

SOME REFLECTIONS ON THE TEACHING OF ARITHMETIC

by J. S. FLAVELL

Headmaster, Wheelers Lane Junior School, Birmingham

To a practising teacher with over thirty years of experience, Mr W. O. Storer's article on "The Arithmetical Attainment of Entrants to Training Colleges" (1) is of great interest. There is little doubt that there is a need for such an inquiry as he reports, nor is there any doubt of the importance of the matter. It is unfortunately true that many entrants to the teaching profession in recent years have been inadequately equipped to teach arithmetic: they have merely had some ideas on the teaching of "sums". This, on reflection, is hardly surprising for several reasons.

First, all teachers are inclined to teach arithmetic, and most other things for that matter, very much as they themselves were taught as children. Inadequate teaching in one generation consequently tends to even more inadequate teaching in the next generation. Very many teachers would agree that in many schools during this century arithmetic teaching has been debased to the teaching of computation and little else. This is unfortunate as computation is only a part, and not the most important part, of arithmetic.

Second, the methods used in recent years, with their great emphasis on computation and little emphasis on understanding, have tended to create dislike, even boredom and frustration, in many students. As Mr Storer so rightly says, "the subject still often produces a severe emotional reaction." During the past few years many writers and speakers have stressed the shortage of mathematicians and teachers of mathematics, and quite a number of them have declared that the methods of teaching in schools, particularly in the junior schools, are in some measure responsible for this shortage.

A third factor operating against the good teaching of number is the current tendency towards standardisation of method. In the name of greater accuracy and efficiency, real or alleged, certain methods of setting down "sums" are adopted as being superior to

others. The accepted criterion of superiority is a statistical one. It is alleged that more sums are got right by the chosen method than by other methods. Such a claim is quite unconvincing. The attempts to standardise over an area such as a county should be resisted by all teachers with the real interests of education at heart. The only standardisation needed is such as will ensure that all teaching is based on understanding and that blind manipulation is banished from our schools. To take just one example, who is to say that in subtraction, because the statistical evidence slightly favours equal addition to decomposition, the former is the better method? The important aspect of any method at any stage is not necessarily the computational one, but the mathematical. Which gives the better insight into number relationships? Which adds the more to the mathematical growth and maturity of the child? The statistical criterion is very unreliable and dangerous in such circumstances. To base standardisation (better it were called fossilisation) on such evidence were folly indeed. Streamlining is an industrial technique well suited to the assembly line, but ill suited to our schools. Streamlined thought is the ultimate product reached by the individual after years of study; it is the end product. To confine a child's arithmetical thought within the straitjacket of a streamlined, standardised method is ill advised both psychologically and educationally.

To return to Mr Storer's article, it is reassuring to know from him privately that "the criteria adopted in the survey are inadequate". He continues: "This first survey does no more than call attention to the most obvious deficiencies in students' knowledge. Failure in the more formal work, such as is revealed here, almost certainly involves lack of comprehension. Even achievement in formal work might be accompanied by lack of comprehension." This, of course, is a truth known to most teachers, but ignored by many, often through no real fault of their own. Pressures such as examinations, parental anxieties and traditional "standards" of computation are not easily resisted.

Thomson pointed out nearly thirty years ago the dangers of assessment by mere accuracy in reckoning: "The danger is ever present that a student may learn to manipulate symbols entirely without comprehension so that he not only saves himself the trouble of reasoning now, but he never has done the reasoning which would have given him the right to use them." Renwick in *The Case Against Arithmetic* (2), published in 1935, gave a similar warning: "It is facility with these symbols which hides ignorance of the entities to

which they belong." Lamborn in his *Reason in Arithmetic* (3), also published in the 1930's, wrote more forcibly: "Modern arithmetic teaching has failed because the teachers themselves have never come to an intelligent understanding of the 'rules' they have learned to apply. Very few teachers of arithmetic understand the elements of the subject they profess to teach. They think they do." This comment suggests that, in the eyes of one man at least, the training colleges were not properly equipping their students in those days. But probably the most powerful case against undue reliance on computational criteria was the monumental work of Wheat, *The Psychology and Teaching of Arithmetic* (4), published in 1937. This book made a most detailed analysis of arithmetical thought, and showed the way to an almost completely new outlook on the teaching of arithmetic. Wheat asserted that "Test scores are merely indications of success or failure. A high score often accompanies lack of understanding, and a low score often parallels progress. One must go back of the test to gain an idea of the standing of the pupils."

To-day, Piaget, occupying a central place in current educational thought, has carried their argument to its logical conclusion (5). He holds that understanding of certain principles is basic to the appreciation of number relationships. Of these, it is probably true to say that the more important are those he calls conservation and reversibility. (Conservation refers to the fact that the number of beads, for example, remains the same whatever their configuration, and that the quantity of a liquid remains the same whatever the shape of the containing vessel. Reversibility refers to the equivalence of $2+3=5$, $5-3=2$ and $5-2=3$.) Without an understanding of these principles, Piaget believes the teaching of computation to be mainly a waste of time and a source of confusion and trouble to come. The intriguing, and as yet unsolved, aspect of Piaget's work, at least so far as the classroom is concerned, is the problem of how far the understanding of these basic principles can be accelerated by suitable teaching. His view appears to be that it is probable that such maturity cannot be accelerated, a rather surprising conclusion. Be that as it may, the whole of Piaget's work on number underlines the importance of comprehension and insight into number relationships. Blind performance of little-understood processes, such as comprises a large part of junior school arithmetic to-day, has no place whatever in his philosophy.

That there is something seriously wrong with the early teaching of number has been the view of thoughtful educationists for some

years. Dissatisfaction with current tendencies has grown steadily and criticisms have been increasingly common. Adams, after a considered analysis of present-day number teaching, completely rejects the computational emphasis so often found in junior schools (6).

The time has come for an exhaustive review of the aims and purposes of arithmetic, especially at the primary level. Traditional ways of thought must be re-examined in the light of modern social and psychological needs. Destructive criticism must give way to positive, constructive proposals. Up to the moment, such proposals have been few and nebulous. Possibly a re-assessment of the fundamentals of early arithmetic might be profitable. For many years the only fundamental stressed in schools was the value of "tables". Originally, tables meant the multiplication facts; they came to include addition and subtraction facts as well. In the eyes of well-nigh all parents and most teachers the learning of these tables was the real essential of the arithmetic teaching in the first four or five years at school. A school's adequacy in the sphere of arithmetic was in large measure judged by the success of its pupils in the memorising of tables. Is such an assessment reliable? Have these tables the over-riding importance attached to them, or is their day passing? Certainly if the aim of the teaching at the primary stage is a computational one, then tables will remain a principal objective of the course. If the aim is an understanding of numerical relationships and an assessment of quantitative situations, then tables cease to be of outstanding value. They are solely a computational aid, a source of ready reckoning.

Piaget makes certain suggestions regarding the fundamentals of number teaching in the early years. What may be said regarding the junior school stage? There is an urgent need for practising teachers to "marry" the Piaget fundamentals to number work at this stage, and to do this in terms of the classroom situation. With this in mind the following principles are put forward in the hope that they may stimulate thought on the subject, with the consequent drafting of better ones. It is suggested that in the junior school we should try to obtain:

1. Understanding of notational principles. This is essential and most difficult.
2. Appreciation of the place and function of the zero.
3. Understanding of the operations of arithmetic. By this is implied some knowledge of the meaning of addition, subtraction, multi-

plication and division, and also the power to translate to and from life situations.

4. The ability to estimate and approximate.
5. Understanding of the conventional means of recording quantitative situations; that is, knowledge of the signs and symbols of arithmetic.

An intelligent study of these essentials would lead to a better understanding of arithmetic, less frustration, and consequently to a better adjustment to the numerous quantitative situations of daily life; that is, to a socially mature education. It is likely that a course with such aims, if taught sensitively and with no false objectives, could lead to more and better mathematicians and technicians, an essential to the steady industrial and commercial progress of this country in this near-automatic age.

It will be seen that these basic principles assume and embody the teaching of arithmetic as a language. That is, after all, the fundamental truth underlying the findings of Wheat and Piaget. Moreover, it is implied that since it is a language and a fundamental requirement of the good citizen of to-morrow, arithmetic must be understood at all stages. There are, of course, other implications in such an approach, some of which may be considered here. In all such implications it is the rational interpretation (or to use a better word, translation) that is wanted. Number study should be as integrated as language study. Every part should fit in with every other part, each dependent on each. No more can arithmetic be regarded as a kit of tools, from which each tool can be picked up singly as required; it must be seen as an all-embracing, reasonable, fully integrated body of knowledge. No longer can it be regarded as a tool subject; it is a cultural subject in its own right. Arithmetic is the language of number, the second basic language. It is capable of translation to and from real life situations. Let us consider one or two of the implications.

First, the meaning of the operations must be clarified so that addition and subtraction, for example, mean exactly what they should mathematically. To children their everyday connotation and their arithmetical connotation differ drastically. In the situations of everyday life "addition" usually means making larger; in arithmetic it is the essence of addition that it regroups but in no sense makes larger, there being precisely the same number or quantity at the end as there was at the beginning. Piaget's principle of conser-

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vation would seem to operate here. In arithmetic, multiplication is the collection of a number of equal groups into one main group.

There is an interesting, and not unimportant, sideline on the notation of multiplication which can be pursued with profit for a moment. How should such an arithmetical statement as 7×4 be understood? Traditionally, and in most current practice, it is understood as 7 times 4, i.e. 7 lots of 4. In £7 × 4, however, it is understood as 4 lots of £7, and with this meaning of the " × " sign, 7×4 is to be translated as 4 lots of 7. Whichever interpretation of 7×4 is adopted, the numerical answer is, of course, the same, but this fact does not justify an ambiguity of statement. To suggest to a child that 7×4 is the same as 4×7 is confusing below a certain stage of maturity. Teachers must decide to adopt one only of the verbal translations of 7×4, and leave it till later to show the numerical equivalence of 7×4 and 4×7. It is strongly recommended here that 7×4 should be understood as "7 collected 4 times", or "7 multiplied by 4", or "four sevens", i.e. "7 and 7 and 7 and 7".

Although many specialists do not seem to attach much weight to this, it is such matters of detail which are so important in the early stages in building up a logical, reasonable explanation of number statements. The child must be given one translation of such statements, and one only. If the idea to be expressed is "five fours", it can be set down as "five fours" without the " × " sign, or as 4×5 with the sign. Similarly "three sixpences" can be expressed as either "three sixpences" or as "6d. × 3". These instances might well be considered as trivial, and a rigid interpretation might be regarded as hairsplitting, but it is the accumulation of such confusing trivia that can cause difficulties to so many children. The habit has developed of using the signs for the operations of arithmetic, those of addition, subtraction, multiplication and division, in a loose, slovenly way. Few children have any idea of the real mathematical significance of these symbols. Here is a great and constant source of confusion, and one which can readily be removed by restating in suitable terms just what is their meaning. They should be taken out of the schoolroom into the world of the child and related to his normal activities and interests. Examined in this light, the real meanings of the symbols and terms can be illuminated and made familiar. Division and subtraction become forms of sharing—subtraction into two groups which are usually unequal, division into two or more groups which are always equal. Addition and multiplication are both forms of collection, addition being the collection of a number of groups,

usually unequal, into one main group, and multiplication the collection of a number of groups which are always equal. To a child, collecting and sharing are familiar occupations, and the use of these terms may serve to convert the operations of arithmetic into something much more than strange manipulations performed only within the confines of the classroom.

This treatment of the operations as real operations, applicable to sticks and stones, to apples and oranges, to milk straws or foreign stamps, is an important aspect of the teaching of arithmetic as a language. It does not, of course, replace the abstract use of number; it merely fortifies it. The emphasis is as much on the actual doing as on the end product, the answer. There is no attempt to impose any standardised procedure on the child. Streamlining has no place whatever at this stage. Better to give freedom to explore and experiment as widely as possible. Let the experiments be set down on paper in the way most acceptable to the child. Miss Adams (7) gives some good examples of such free statements of sums. For instance, a child who is experimenting with simple additions, or collections, may be allowed to set down his findings, if he wishes, as partial sums, thus:

$$\begin{array}{r} 18 \\ 16 \\ \hline 14 \\ 20 \\ \hline 34 \end{array}$$

Here the 6 and 8 are collected and counted to make 14, which is written down; then the 10 and 10 are collected and the resulting 20 is written down. The final sum is then obtained without any of the fuss of carrying. After all, why should a child be forced into the rigid pattern so often imposed by schools?

A second key topic is the treatment of the zero in the language of number. The present fashion of teaching the zero combinations alongside number combinations is a reprehensible one and springs from the emphasis on computation. The zero is not a numeral and should not be treated as such. Can such statements as "o × 6", or "5 and o", be explained sensibly to a child? Actually, of course, such combinations do not occur in isolation but only in computations where there is little difficulty in handling them intelligently. The zero is a placeholder, the sign of emptiness, the sign that there is nothing there. If this idea is emphasised, there is much less danger

of the confusion which the present use of the zero produces, and the zero need present no particular difficulties in computation. It is impossible within the scope of an article such as this to enlarge fully on this point. Suffice it to say that it works in practice, even with the most difficult cases of all, such subtractions as "1000 − 325". Here the 1000 is regarded as nine hundred and ninety-ten, an idea progressively developed from simpler cases in which, for example, 30 is regarded as twenty-ten. A child's bedrock in arithmetic is his faith in counting and this soon establishes 30 as twenty-ten. He may count "twenty-eight, twenty-nine, twenty-ten". There is no need in early number work ever to treat the zero as anything but the sign of the empty column. The emphasis on computational accuracy and efficiency, however, has led nearly all text-book writers to include zero combinations in their examples.

This article has moved far from Mr Storer's report. There is much need for reform in our arithmetic teaching and an attempt has been made very sketchily to suggest some of the changes which appear necessary. Many matters have been omitted or fleetingly touched upon, but it is hoped that enough has been written to draw attention once again to the importance and urgency of the problem. The report under discussion gives a welcome indication that training colleges have begun to tackle the problem. It is hoped that teachers in the schools will also take the initiative.

REFERENCES

1. Storer, W. O., "The Arithmetical Attainment of Entrants to Training Colleges", *Educ. Review*, IX, 1957, pp. 113-6.
2. Renwick, E. M., *The Case Against Arithmetic*, London, Simpkin, 1935.
3. Lamborn, E. A. G., *Reason in Arithmetic*, O.U.P., 1930.
4. Wheat, D. G., *The Psychology and Teaching of Arithmetic*, Boston, Heath, 1937.
5. Useful summaries of the relevant aspects of Piaget's thought are given in two publications of the National Froebel Foundation: Brearley, M., *Number in the Primary School*, 1954; and Lawrence, E., Theakston, T. R., and Isaacs, N., *Some Aspects of Piaget's Work*, 1955.
6. Adams, L. D., *A Background to Primary School Mathematics*, O.U.P., 1953.
7. ibid.

THE INTEREST SHOWN BY BOYS AND GIRLS IN THE PRINCIPAL ASPECTS OF HISTORY IN GRAMMAR SCHOOLS (1)

by R. R. DALE
Lecturer in Education, University College of Swansea

and IEUAN JONES
History Master, Neath Grammar School

SOME educationists believe that the interests of boys and girls are so different that at the secondary stage they need different syllabuses for many subjects. Others lay stress on the fundamental similarity of human nature in both sexes, minimise the differences, and suggest that there is a wide variation of interest within each sex. The authors have attempted to discover the extent of the differences between the sexes and of variations within each sex with regard to the interest shown towards history in grammar schools.

The research of Ieuan Jones (2) was carried out in 1955 in four boys', four girls' and four mixed grammar schools in South Wales, among the pupils of one fourth-year form in each school. There were 190 girls and 143 boys; the average age was fifteen. A questionnaire was administered by the researcher and not signed by the pupils, who were assured that their replies would not be shown to the staff. It was divided into six "aspects" of history: military, religious, social, "cultural", economic, political and constitutional. Each of these had four sub-sections, the fourth always being biographical. Departures from what was considered to be the best arrangement of items had to be made to meet practical difficulties in the field work. For example the economic aspect included as sub-sections, "Relevant scientific discoveries" and "Voyages of exploration"; these were too diverse for effective marriage. The "cultural" section similarly, contained sub-sections on crafts, painting and architecture, music, and relevant biographies. The work would also have been improved by the separation of political from constitutional history. In those instances where sections are now considered to be insufficiently homogeneous emphasis has been placed on the results of individual sub-sections

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rather than on the section as a whole. Pupils were asked to represent their interest in each item by recording a numerical score on a five-point scale ranging in units of five, from +10 to -10. Provision was also made for free qualitative responses. Differences between means were tested for statistical significance by the small sample "t" technique, based conservatively on the small number of schools rather than on the relatively large number of pupils.[1]

The overall response to the 24 items for both sexes was well above the neutrality line. On the combined scale, which ranged from +240 to -240, the average score of the boys was 73·3 and of the girls 84·5, the difference not being statistically significant. The average score per item, on the scale +10 to -10, was 3·05 for boys and 3·5 for girls. In these overall averages, however, all the aspects received equal weighting, whereas in the usual syllabus the religious and "cultural" aspects would be less prominent. Reducing the weighting of these two aspects would increase the overall averages; it would also bring the two sexes closer together as the girls scored more heavily than the boys on religious and "cultural" aspects. This result was checked by requiring pupils to answer the question "Do you like history as a school subject?" The same five-point scale was used, +10 meaning "I like very much", +5 "I like" and so on. The average response for both sexes was rather higher than that for the 24 items combined, for reasons suggested above, and was almost identical for girls (5·42) and boys (5·35). The percentage of girls giving a favourable reply was 86·9 and of boys 84·6; 9·5 per cent of girls were negative, and 8·4 per cent of boys. Only three boys and not one girl expressed "very great dislike". One-third of each sex affirmed a "very great liking". The most marked feature of this part of the results is undoubtedly the similarity between the sexes in their total popularity scores. Such an overall similarity could, however, conceal appreciable differences in the response of the two sexes to various kinds of history. This problem is examined in the next section. We must keep in mind that the results of this section apply specifically to grammar school boys and girls who are about fifteen years old.

The relative popularity of the different aspects and of individual items is shown in Table 1.

It is surprising that military history was almost equally popular with the girls as with the boys, with no significant difference between

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[1] A test used in educational psychology to assess to what extent a difference between the means of two sets of scores might have occurred by chance.

TABLE 1

THE RELATIVE POPULARITY OF VARIOUS ASPECTS OF HISTORY
Scale Range + 10 to − 10

Short Title		Girls	Boys	Difference
A.	Military (all)	4·3	4·9	0·6B
1.	Wars in Britain	4·0	5·8	1·8B
2.	Wars in other countries	2·9	4·9	2·0B
3.	Causes and results of wars	3·0	2·3	0·7G
4.	Lives of generals, admirals etc.	7·1	6·7	0·4G
B.	Religious (all)	3·6	0·9	2·7G
5.	Story of religion in Britain	5·2	0·35	4·85G
6.	Christianity in other countries	0·8	− 0·3	1·1G
7.	Story of other religions	1·05	0·2	0·85G
8.	Lives of great religious leaders	7·45	3·5	3·95G
C.	Social (all)	5·5	3·5	2·0G
9.	How people lived in Britain	7·2	4·4	2·8G
10.	How people lived elsewhere	5·6	3·0	2·6G
11.	Customs, games, sports etc.	4·6	5·35	0·75B
12.	Great social reformers	4·5	1·3	3·2G
D.	Cultural (all)	2·4	0·6	1·8G
13.	History of the arts	0·05	0·6	0·55B
14.	History of the crafts	0·55	1·9	1·35B
15.	History of music and literature	4·0	− 1·4	5·4G
16.	Great painters, writers, composers	4·9	1·4	3·5G
E.	Economic (all)	1·4	4·4	3·0B
17.	History of agriculture and industry	0·0	2·5	2·5B
18.	History of trade, transport	0·95	4·3	3·35B
19.	Science in agriculture, industry	0·55	4·3	3·75B
20.	Great explorers, inventors etc.	4·1	6·5	2·4B
F.	Political, Constitutional (all)	4·0	3·9	0·1G
21.	Government in Britain	3·6	2·5	1·1G
22.	Government elsewhere	0·5	0·8	0·3B
23.	Political struggles etc.	4·1	6·15	2·05B
24.	Great rulers, statesmen	7·7	6·3	1·4G

them. When we look at the separate items, however, we see that while the girls are interested in the actual battles, the boys are rather more interested in them, and the girls on the other hand are perhaps slightly more interested than the boys in the causes and results of wars. Both sexes give a higher place to the lives of generals and admirals etc. than to any of the other three items.

The four items of political and constitutional history produced a combined response signifying popularity for both boys and girls, and the pattern of response was similar for the two sexes. Both preferred political to constitutional history and both expressed keen interest in the lives of great rulers and statesmen.

Social history was popular with the girls and fairly popular with the boys. On the scale $+ 10$ to $- 10$ (in units of 5) the boys averaged 3·5 and the girls 5·5; the difference is statistically significant, i.e. it is unlikely to have occurred by chance, but for practical purposes in the classroom the scores do not seem to be unduly apart. With regard to individual items the writer from his classroom experience would have expected the boys to have a rather higher score on the lives of social reformers. Only repeated experimentation could decide whether there is any fault here, and indeed decide whether the other findings are sound.

The "cultural" aspect of history was not really popular with either sex, but the girls' score (2·4) was rather higher than that of the boys (0·6). Though the difference was small in relation to the scale range, it was statistically significant. It was mostly due to the liking of the girls for the history of music and literature (4·0), which was slightly unpopular with the boys ($- 1·4$). One wonders, however, whether all the boys were really voting from experience. The girls, more than the boys, appeared to enjoy biographies of artists, musicians, etc.

Sex differences were shown more clearly in the "religious" and "economic" aspects of history. With the former, though the ranking was close (fourth for girls and fifth for boys) the difference between the means was somewhat greater than in previous cases (girls 3·6, boys 0·9) and was statistically significant. The biographical approach to this aspect was, however, popular with both sexes. It was in the "economic" section that the sex difference was greatest (girls 1·4, boys 4·4); girls ranked it last while boys ranked it second. Once again the biographical aspect was liked by both sexes, though more so with boys than with girls. It will be remembered that this economic section included scientific inventions in industry, and it was in this item that the sex difference was most marked. In none of the

four items did the girls sink below the neutrality line, though in the "history of agriculture and industry" they reached it.

With only two of the 24 items was there an average response below the neutrality level for either sex. Boys expressed some dislike of the history of music and literature, and a very slight dislike of the history of Christianity in other lands.

An attempt was made to check the rank order of the six aspects as derived from their scores on the five-point scale, by later asking the pupils to arrange these aspects in order of preference. Unfortunately the titles, used without the numerous examples given in the main questionnaire, did not in two cases suggest exactly the same content. The original "political and constitutional" aspect appeared as "history of governments", thus emphasising the constitutional content, and being distinctly less popular. The original "economic" aspect, not now specifically including relevant scientific inventions and exploration, also lost rank slightly with the boys. Otherwise there was a general confirmation of the rankings of the main investigation.

To the question, "Would you like history lessons on the last 50 years?" there was a response rather above "liking", with only a small difference between the sexes (boys 6·43, girls 5·32). The percentage of favourable replies was 86 for the boys and 80 for the girls. This was of course, a response made when most of the pupils had received no direct instruction on the period.

It would be a great mistake to regard any difference between the mean scores of boys and girls, or between their rankings, as representing a clear-cut division between the sexes on any one of these aspects. In the first place the many small score differences, viewed in relation to the large possible range, are indicative of similarity rather than difference. Secondly there is a wide range of scores between the groups of each sex; for example in "political and constitutional history" the girls' groups range from 4·7 to 0·6, and the boys' groups from 5·95 to 1·25; in the "economic" aspect the girls' groups range from 4·2 to −0·2, and the boys from 5·17 to 3·19. Thirdly, within each sex there is a wide individual variation; for example 25 girls gave military history as their first choice, while 22 gave it as their last, and 13 boys gave economic history as their last choice while 14 made it their first choice.

Fortunately we are able to compare these findings with those of Cairns (3), who also attempted to ascertain the relative appeal of the principal aspects of history to the two sexes. His investigation was

carried out in one mixed grammar school, two mixed secondary modern schools, one boys' technical school and one girls' commercial school, all in industrial parts of Durham. At each school about 30 boys and about 30 girls from the 12+ age group, and a similar number from the 14+ age group, took part. We should note here that Jones' pupils were slightly older (average age 15). The number of schools is small in view of the influence of the teacher on subject popularity.

The most reliable part of the work is a questionnaire of ten items. On this pupils expressed their reaction on a five-point scale, from +2 to -2, to various aspects of the history syllabus. Table 2 has been compiled by the writer from Cairns' results; it combines, however, pupils from three types of secondary school and two age groups. Jones on the other hand carried out his research only in grammar schools.

TABLE 2

CAIRNS' QUESTIONNAIRE. AVERAGE SCORES[1]

Topic	Boys' Average	For	Against	Girls' Average	For	Against
1. The lives and deeds of important men and women	1·11	149	10	1·48	181	1
2. The everyday life of ordinary people in other times	0·32	76	35	1·0	141	9
3. How trades and industries used to be carried on[2]	0·54	107	36	0·7	128	30
4. The development of things like ships, houses, tools, roads	1·2	153	10	0·42	97	43
5. The ideas people used to have about the world etc.	0·61	113	30	0·61	114	33
6. Government and law, how Parliament grew etc.	0·23	84	52	0·21	90	57
7. Difficulties and problems of kings and statesmen etc.	0·70	115	27	0·84	183	24
8. The causes of all the problems that face the nations	0·28	89	51	0·12	85	63
9. Adventurous deeds in warfare and exploration	1·76	179	1	1·43	170	10
10. The history of your own town or district	1·15	152	12	1·44	175	6

Both sexes ranked the "romantic" aspect of history high in popularity, the boys having a very slightly higher score than the girls on "Adventurous deeds in warfare and exploration", and vice versa on "The lives and deeds of important men and women".

[1] i.e. weighted scores in the scale +2 to -2. There were 191 girls and 186 boys. Neutral votes are omitted in the table, "strong approval" is combined with "approval" under the heading "For", and "strong disapproval" is combined with "disapproval" under the heading "Against".

[2] For full wording see text.

While the girls had a virtually identical score for these two items, the boys preferred the "Adventurous deeds".

"The history of your own town or district" was also ranked high by both boys and girls, with age having no effect on the score. The girls, however, were slightly more strongly in favour of it than were the boys.

In response to the item which was next in popularity when both sexes were combined, "The development of things like ships, houses, tools, roads", any sex difference would depend largely on the choice of examples. In this case both sexes indicated their approval, but the boys were more enthusiastic than the girls.

Just below the last item, still fairly popular and with little difference between the sexes, came "Difficulties and problems of kings and statesmen of other days, and how they tried to overcome them".

Still on the positive side of the popularity continuum, "The everyday life of ordinary people in other times" was popular with girls but only slightly popular with boys. Industrial history, "How trades and industries used to be carried on, e.g. clock making, mining, farming", received a similar ranking of slight popularity from both sexes, as did "The ideas people used to have about the world and about how men should live together and behave towards one another". For these last two items, however, approximately one-sixth of each sex recorded disapproval.

The attitude of both sexes to "Government and law, for example, how Parliament grew, elections, methods of justice and various types of courts, rates, and taxes" was identical and merely tinged with approval, as was also their attitude to "The causes of all the problems and difficulties that face the nations of the world nowadays".

We see therefore that in eight out of the ten items the popularity voting of the girls is very similar to that of the boys. The remaining two items need further comment. "The everyday life of ordinary people in other times", though more popular with girls than with boys, has more than twice as many boys voting for it as against it. Similarly, though the "development" item is more popular with boys than with girls (possibly because of the examples chosen) yet the number of girls liking it is more than twice the number of those who dislike it. The emphasis throughout the results is on the broad similarity of the attitudes of the two sexes.

Those who read this article with a view to applying their findings in the classroom should note that these averages, like those of Jones, sometimes conceal important differences between school groups of

the same sex. For instance the popularity of Item 3, "How trades and industries used to be carried on", varied from 0·15 (technical boys) through 0·61 (grammar boys) to 0·9 (secondary modern boys), and from 0·52 (commercial girls and grammar girls) to 1·05 (secondary modern girls). Again in response to Item 8 on world problems, the grammar school girls scored − 0·11 while the 14 + secondary modern girls scored 1·0.

Though we need to keep in mind that Cairns' pupils were younger than those of Jones and were not drawn only from grammar schools, these two researches give each other appreciable support. They agree on the high popularity of biography and of adventurous deeds in warfare for both sexes. They find political history moderately popular, and constitutional history of low popularity, with little or no sex difference. They agree also that girls are slightly more interested than boys in social history. One apparent disagreement is that while Cairns found (surprisingly) no sex difference on "How trades and industries used to be carried on", Jones obtained a sex difference in favour of the boys. This seeming conflict might stem partly from the population difference, but may be due to the different content of the aspect in the two inquiries, for example the inclusion by Jones of relevant scientific discoveries.

The remaining portion of the Jones research, concerned with the overall popularity of history for boys and for girls, receives strong support from the work of Pritchard (4). Using a population of 8,000 grammar school boys and girls, of age range 12½ to 16, to discover the relative popularity of ten subjects, he found that on a scale ranging from 200 (if a subject was placed first by all pupils), to 0 (if placed last by all pupils), history scored 114 in boys' schools, 117 in girls' schools, 115 among boys in mixed schools and 108 among girls in mixed schools. History was third in boys' schools, second in girls' schools, third among boys in mixed schools, and third among girls in mixed schools (one point behind French). Both Jones and Pritchard therefore find little difference between the sexes in the relative popularity of history in grammar schools.

Interest cannot be the sole factor which decides the historical topics which are taught in our schools, but it is an important one. The argument, therefore, that sex differences in interests create a need for a sex differentiation in curriculum and in syllabus cannot be brushed lightly on one side. Research such as that presented here will reveal the extent of the differences and similarities, so that the matter may be judged with less emotional bias. A further field

which might usefully be explored is that concerned with the interaction of the different interests of the sexes in mixed classes. Does the greater interest of the boys in economic topics communicate itself to the girls, and does the interest of the girls in some of the history of religion communicate itself to the boys? Is the interest of each sex widened? Has the male sex a different approach to the subject compared with the female, and if this is so is a better understanding of history obtained by separating the sexes or by combining them in the same class? All these questions need investigation, but the wide variation within each sex in attitude to history points strongly not to the need to cater for sex differences, but to the need to cater for individual differences.

The averages presented here are only central points of reference. Though the character of the material studied in the classroom is normally the most powerful force in determining the interest of the pupil, every teacher knows that other forces such as the popularity of the teacher, his skill in presentation, and the method he chooses for a particular topic, have their effect. Nor does the pupil's enthusiasm for the lives of conquerors remain at a constant level for all the biographies he studies. None the less these results, which should be considered as broad tendencies rather than figures taken to the second decimal place, gives us a more accurate, albeit still imperfect, conception of the interest of grammar school boys and girls in the various aspects of history in school.

APPENDIX

LIST OF QUESTIONNAIRE ITEMS

(In the original questionnaire examples were given for each item)

A1. The history of wars, conquests and battles in British history
A2. The history of wars, conquests and battles in other countries
A3. Why the wars began, and the results of the wars
A4. The lives of the great conquerors, warriors, generals and admirals

B5. The history of religion in Britain
B6. The history of the Christian church in other countries
B7. The history of other religions
B8. The lives of the great religious leaders

C9. How people lived at different times in British history
C10 How people lived at different periods in other countries
C11. The history of customs, games, sports, pastimes in Britain and other countries
C12. The lives of the great social reformers

D13. The history of the arts (i.e. of painting, sculpture, and architecture)

D14. The history of the crafts. (i.e. of metal-work, weaving, carving and pottery-making)

D15. The history of literature (poetry, prose and drama), of the theatre and of music

D16. The lives of the great painters, sculptors, writers and musicians

E17. The history of agriculture and of industry

E18. The history of trade and commerce, transport and communications

E19. How scientific discoveries have helped progress in agriculture, industry and trade

E20. The great men who advanced agriculture, industry, trade and communications

F21. The history of government in Britain

F22. The history of government in other countries

F23. The history of political struggles, revolution and civil wars

F24. The lives of the great rulers and statesmen

REFERENCES

1. This article is written by R. R. Dale. It is based upon research planned and supervised by the writer, and carried out by I. Jones; also upon an analysis of all directly relevant theses listed in A. M. Blackwell's *Lists of Researches in Education and Educational Psychology*, published by the National Foundation for Educational Research, namely those by T. Cairns (1953), A. Hashim (1948), M. Uprichard (1947), A. Smyth (1946), C. Lambert (1944), R. Rallison (1939), D. Jordan (1937), J. Shakespeare (1934) and R. A. Pritchard (1928).

2. Jones, I., *An investigation into the response of boys and girls, respectively, towards the content of the history syllabus in grammar schools.* Unpublished M.A. thesis, University College of Swansea, 1955.

3. Cairns, T., *Interest in history shown by secondary school pupils with special reference to the aims of history teaching.* Unpublished M.Ed. thesis, King's College, Newcastle, 1953.

4. Pritchard, R. A., "The relative popularity of secondary school subjects at various ages", *Brit. J. Educ. Psychol.*, V., 1955, pp. 157, 229.

BY HEART, BY HEAD OR BY ROTE?

by M. K. PAFFARD

Lecturer in Education, University College of North Staffordshire

L ET us follow common practice and allow the head to be the seat of the intellect, the heart of the emotions. This granted, much of the tragic folly of our lives is the direct result of permitting our heads and hearts to get in the wrong places, of following the dictates of one and ignoring the warnings of the other. Much of the tragic unbalance of our education springs from our preoccupation with heads and our sad neglect of the corrigible heart. We force one like rhubarb and allow any frost to wither or any rogue to spread the compost on the other. Anyone would think we cared only for clever and not at all for good and happy people.

These are enormous truisms which it would be impertinent to mention were it not that I am concerned with the way this confusion of heads and hearts creeps into our thinking about methods of learning in general and the way we try to bring children and poems better acquainted in particular.

The confusion is rooted in the way we use our language: all our lexicographers since Johnson have allowed "learning by heart" to by synonymous with "committing to memory", but here the lexicographer shows the same semantic innocence as the rest of us. Because he is concerned to record the way we do in fact use language, he may be the least reliable guide to the way we ought to use it for the sake of clear thinking. (One has only to notice the confusion he allows between "discipline" and "order" which bedevils all discussions of teacher—pupil relationships in the classroom to see the truth of this.)

Mere rote-learning has always been stigmatised; "To fix in the memory without informing the understanding. Unintelligent repetition," says Johnson; not so that drilling of the memory in the equipment of the intellect which is usually called "learning by heart" but might more properly be called "learning by head". This is by far the most venerable and, until comparatively recently, the only known method of systematic learning. Yet to-day, with the emphasis on learning through experience and activity, "learning by

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heart" is frequently equated with rote or parrot learning. So, in our reaction against the excessive verbalism of the past, confusion becomes worse confounded.

Were we to try and sort it out in an educational glossary, we should need, I think, to proceed along these lines:

Rote, n., as in "to learn by rote", "to repeat from rote". Memory of words without comprehension of the sense. Mere habituation. (Always pejorative).

Head, n., as in "to learn by head". Committing to memory data the use or significance of which is understood.

"To memorise" or "commit to memory" are no use to us, for it is two very different uses (or rather a use and an abuse) of the memory which we want to distinguish.

What, then, will be our gloss on "Heart"? What do we or should we mean when we ask a child to learn a poem "by heart"? We are of course suggesting that he commit it to memory but, I submit, for a reason very different from the one that prompts him to master his nine times table or the principal parts of an irregular verb. He *sees* that he *ought* to learn his verbs or his tables *if* he wants to be able to construe or calculate; the imperative is hypothetical, it depends on the "if" clause. It is possible, as we all know, to learn a poem in the same spirit, to impress an examiner or convince a schoolmaster that a homework has been completed, but if we care for poetry we must feel that this has nothing to do with the legitimate motives for memorising poetry. The only valid reason for learning a poem is because that poem has tugged at the heart-strings and demanded entry. We learn it because we feel the need of it, we want it as a permanent possession to carry about with us, we have fallen heart over head in love with it. The memory grasps it readily and the learning is no task.

So our entry in the glossary might read:

Heart, n., as in "to learn by heart". To commit to memory that which the heart loves and desires to possess.

If we could only stick to these definitions we should begin to talk and think sense and keep our hearts and heads in the right places. Robert South the divine once wrote, "We call the committing of a thing to memory the getting it by heart; for it is the memory that must transmit it to the heart; and it is in vain to expect that the heart should keep its hold of any truth when the memory has let it go." If we were habitually as wide awake about our language as he was, I should have no need to make this plea.

There is, however, one common experience that, to my mind, does the greatest mischief to our clear thinking about this whole question. Many adults were forced in their schooldays to learn large quantities of poetry, a task they disliked heartily enough at the time. However, when by accident they meet one of those poems to-day they greet it with a warm glow of affectionate recognition and feel grateful to the teacher who made them learn it. In this they find an adequate justification for inflicting the same process on their pupils. I would wish to challenge this conclusion by asking two questions. First, how many of these people still read and learn poetry, even occasionally, for their own recreation and pleasure? Secondly, how much of the feeling they profess for the poems they were made to learn is a pleasant nostalgia, aesthetically quite irrelevant to the poems themselves? I have more than a suspicion what the honest answers would reveal.

A widely read and authoritative book on the teaching of English published in 1952 contains this sentence: "We must leave life to teach our boys what value to us remembered verses bring." I would reply quite simply, "What is love? 'tis not hereafter"—and it is with love and its seat, the heart, they would have us tamper.

I am concerned only to suggest what seems to me the indispensable attitude to learning by heart; it is beyond my scope to detail the practice that will follow from it. Clearly the more poetry our pupils really do learn by heart the better. It is something we can never turn into a task; it must be a labour of love and then it will be the finest possible testimonial to the success of our teaching.

I visit many schools and frequently hear children asked to repeat poems they have learnt. Too often it is a painful ordeal for all concerned: they mumble and stumble their way through and clearly the heart has played no part in the process of transmission to the memory. If the teacher was honest with himself and his pupil he would say,

> Speak to the class
> Words roted in your tongue; bastards and syllables
> Of no allowance to your bosom's truth.

I apologise for making free with Shakespeare again but this sort of thing makes me sad and angry, as it would have done him,

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BOOK NOTICES

RELIGIOUS EDUCATION

Spencer Leeson: *Christian Education Reviewed*, Longmans, Green & Co., 16s. 6d.

Growing Christians—A Report on the Church's Work among Children in the context of English Day-School Practice, The British Council of Churches, 1s.

H. W. Dobson (ed.): *Church Teaching for the Junior Child*, The Church Information Board, 4 vols., 6s. each.

H. W. Dobson (ed.): *Old Testament Study Notes*, The Church Information Board, 4s.

E. C. D. Stanford and M. Bell: *The Story of the People of God*, Oxford University Press, 2s.

H. A. Hamilton: *Conversation with God*, The Religious Education Press, 2s. 6d.

Horton Davies: *Christian Worship*, The Religious Education Press. 6s.

E. H. Hayes (ed.): *Begin Here*, The Religious Education Press. 7s. 6d.

R. H. Lightfoot (ed. C. F. Evans): *St. John's Gospel, A Commentary*, Oxford University Press. 30s.

Christian Education Reviewed, by Dr Spencer Leeson, the late Bishop of Peterborough, is a thorough and careful examination of its subject since 1944, providing an interesting comparison with *Religious Education in Schools*, the report of the Research Committee of the Institute of Christian Education which appeared three years ago. Dr Leeson was well qualified to write by his experience both as Headmaster of Merchant Taylor's School and Winchester College and later as an Anglican priest and then a well-known and beloved bishop. His review ranges over the whole educational field, from infant school to university, and as would be expected is at every point guided by the conviction that both the aims and foundations of education are religious. He has no doubt about the responsibility of the teacher for guiding his children towards the faith.

We may be told—and this is an objection most conscientiously felt—teachers must not seek to impose a faith, religious, political or any other, on the children for whom they are responsible. The children must find out for themselves; it would be wrong to mould them or to prescribe their opinions to them. There is a deep misunderstanding here. Would we have children find out the multiplication table for themselves or the rules of road safety?—and if they need teaching and guidance in those, do not they need it even

more in the deepest concerns of their lives here and hereafter? What this objection really implies, if we think it out, is that the things of the spirit do not in fact matter. ... Children ... have a right to guidance from those they know best on the meaning and the end of life; to deny it to them is to betray them.

It is not surprising that Dr Leeson writes vigorously of his concern that the Church of England should not shrink from the formidable task of maintaining its denominational schools at their present though much reduced strength. What is perhaps surprising, in view of all that he writes in appreciation of many schools, is his contention that this is necessary since only a church school can effectively become in itself a worshipping community. County schools "are compelled by law, and rightly so, to observe certain limitations that make it difficult, if not indeed impossible and unfair, for them to become worshipping communities in any real sense, and we cannot have a full and living Christianity, whether for individuals or for the nation, without fellowship in a Church. It will not be taught or caught from a syllabus alone." We can but wonder whether in practice the distinction is as sharp as this. Theoretically, the task a church school faces in bringing its scholars into the life of the adult church ought to be easier; but we have yet to see any concrete evidence that as a general rule its lasting achievements are greater.

Of especial interest is Dr Leeson's concern for the preservation of the village school; few would dispute that such a school "lies at the heart of the community life of the village". The merits of the plans suggested must depend to no small extent on the growth within such villages of an ecumenical attitude between those of differing church traditions. It was the alleged injustice of the "single school areas" that lay at the root of much bitter religious controversy at the beginning of the century; are the villages to-day more tolerant, as many church leaders are, or merely less interested? Only the former attitude will really secure those advances which Dr Leeson most desires, both in country and in town.

That there has been a considerable advance in ecumenical under-standing in some quarters is borne out by the report of the British Council of Churches, *Growing Christians*, which discusses the relationships which ought to exist between the churches, the schools and the Sunday schools in the field of religious education. The present reviewer was a member of the group which produced this report and can only say that, if it succeeds in conveying the eagerness to understand each other's convictions which existed among those who prepared it, it should illuminate an important area of the field of religious education which has so far been too little regarded.

Of the materials for Religious Instruction there is no shortage, although not all authors excel. *Church Teaching for the Junior Child* is the four years' scheme of work for Church of England Sunday Schools, now re-issued after revision and the addition of some new material. It is designed

for Sunday school teachers but others will be glad to dip into it from time to time. *Old Testament Study Notes* also comes from the Church Assembly Children's Council, and is exactly as described by the title—73 pages of notes intended for use by older children as a guide to reading the Bible. Inevitably, Jeremiah must be dismissed in half a page, the Exile in three pages, and the Restoration in six, in a work of this brevity. But it has value for those seeking a simple historical guide when reading the Bible. Of even briefer compass is *The Story of the People of God*, which covers both Old and New Testaments, yet never gives the impression of being scrappy. Its layout is conducive to regular Bible reading; the notes on the carefully selected set passages are excellent, and the additional biblical passages for those who would read more are stimulating in their added comment on each day's theme. Equally well, it could form the basis of classroom work.

An apt companion for this little book is *Conversation with God*—one of the finest practical expositions of prayer we have seen. It came into being as an attempt by H. A. Hamilton, then Principal of Westhill Training College, to meet the devotional needs of his students. By a happy coincidence, if read as intended—a page a day—it covers almost the same period of time as *The Story of the People of God*. The two books together would make a very good introduction to private devotion for children in the upper forms of our secondary schools, nor should they be despised by those who teach them.

For classroom study of worship, we are glad to see that *Christian Worship* has been re-issued at last. Dr Horton Davies sketches with a firm hand the historical development of worship from Old Testament times to the present, leading into a discussion of the essential content and meaning of worship. From the same publishers comes *Begin Here*—a collection of discussion topics designed for club-leaders and others in touch with spiritually illiterate adolescents. Both in its content and its methods it is unusual, and reflects the work of several groups gathered together to share their experiences in such situations. Most of the material could be adapted with advantage for day-school use, especially in some of the tougher forms of some of our modern schools.

R. H. Lightfoot's commentary on *St. John's Gospel* is in a different category, for it is a major New Testament study. This is not the place for an adequate review of an important theological work, but it is to the point to notice that it was begun as a volume in the Clarendon Bible, and that although it considerably outgrew its original compass it still meets the needs of the kind of reader at first envisaged. The work was left at an advanced stage when Professor Lightfoot died in 1953 and it has been prepared for publication by C. F. Evans, who has carried out the task of combining the various introductory notes into a coherent whole with great skill. Like William Temple's *Readings in St. John's Gospel*, the work is based on an English text and requires no knowledge of Greek.

For this reason alone we may be grateful for another important commentary on the Fourth Gospel which is readily accessible to teachers and to A level pupils. The work is of a high standard of scholarship but is devoid of all pretension and is written with meticulous care and lucidity. A superficial criticism might be that the volume lacks an apologetic which is sometimes needed for school use. It is true that there is only a brief discussion of the significance of our Lord's "Signs" in the gospel and that there is no real discussion in the text of the evidence for the miraculous elements. But, after all, to an unprejudiced mind the profundity of the gospel is its own defence. Perhaps the Introduction would have been longer than it is—it runs to 76 pages—had the author lived to complete it; even so, we must be grateful for a volume which should take its place on many teachers' shelves and in many school libraries.

K. E. HYDE

OXFORD BOOKS OF VERSE FOR JUNIORS

BY JAMES BRITTON

Senior Lecturer in English,
University of London Institute of Education.

Four graded books in decorated covers   Size 8in. × 6¼in.

BOOK I *Pp.* 80	Limp linson, 4s. 6d.	Linson boards, 5s. 6d.
BOOK II *Pp.* 88	Limp linson, 5s.	Linson boards, 6s.
BOOK III *Pp.* 88	Limp linson, 5s.	Linson boards, 6s.
BOOK IV *Pp.* 112	Limp linson, 6s.	Linson boards, 7s.

James Britton, a well-known authority on the presenting of poetry to children, has made a fresh and thoughtful selection in these books and has arranged them so that each poem leads on to the next, with a thread of continuity. The link is sometimes a common subject or mood sometimes a deliberate contrast. The anthology contains a large proportion of poems by modern authors, for Mr. Britton believes that these often make a very direct appeal to children. The use of decorative coloured borders to the pages gives a gaiety to the page which should prove attractive to children.

'I think you are to be congratulated on producing the most delightful anthology for juniors that I have ever handled.' *The Headmistress of a Junior School in Middlesex*

'The Oxford Books of Verse for Juniors delight me—poems and bindings will make them most acceptable to both teachers and taught. So few of our books suggest "another world than this"—these do that'. *The Headmistress of a Primary School in Co. Durham*

'. . I have derived the greatest pleasure in discovering just how good this collection is. What a beautiful production this is! And the substance of the books is as delightful as their appearance.' *The Headmaster of a Primary School in Kent*

EDUCATIONAL REVIEW

CONTENTS

EDITORIAL

WHERE does science end? What may we expect science to do? What may we not expect it to do?

The contemporary awe of scientific achievement makes an answer urgent. Faith in "absolutes" has been replaced by faith in "scientific proof", whatever that may be; and our modern superstition has accorded the word "scientific" a prestige that will sell anything, be it a child's toy or a method of studying history, a technique of psycho-therapy or a tube of tooth-paste.

It is frequently assumed that science can provide an answer to any question we care to ask; and although practising scientists will, *qua* scientists, often disclaim responsibility for any philosophy developed solely upon their own methods and findings, it has sometimes been claimed that such a metaphysic will provide an adequate philosophy of life. In the first Annual Lecture of the Institute of Education, published in this issue of the *Review*, Sir Herbert Read restores a balanced perspective.

Contemporary debate on the nature of scientific method has shown that science is just one way among many, albeit a most important way, of describing the world in which we live. There are other ways, which we commonly term "artistic", of communicating and of describing the world. It is generally assumed that the special function of the artist is to communicate emotion and to make evaluations of the kind which are not verifiable in a scientific manner by appeal to sense data. Sir Herbert emphasises the cognitive side of art and takes the view that the artist also creates new facts.

We must not expect from either the scientist or the artist more than his proper activity enables him to provide. The future of science demands that we have a just appreciation of its nature and function; the integrity of our children requires that we offer them a faith which is neither naïve nor myopic. If this article brings us to a better appreciation of the relations between the arts and sciences it will help in devising an education which, although (doubtless) scientific, will yet preserve that balance without which creative thought, and science itself, will wither.

This is the kind of question with which teachers must grapple, or

our schools will be at the mercy of events. As Professor Jeffreys shows both in his article on "Thought and Experience" and in his review of *The Year Book of Education*, we, as teachers, inevitably come face to face with the fundamental issues that have troubled and perplexed man from the beginning of thought. We are not merely occupied in giving instruction: we are involved in society and in life. And thought must lead us to behaviour which itself will supply the answer to those questions about the meaning of life that all children ask, even when they are unable to frame them in words.

The other articles in this issue contain the substance of lectures given at the 1957 Institute Summer School, which had as its theme the Psychology of Learning. One is reminded of the student who wondered what could possibly be said on such a subject: surely when children "learn" they simply "get the hang" of the matter, and what more is to be said? If, of course, the two terms are equated by definition, then there is no denying the proposition. But how does such a tautology help us? The object of any theory of learning is to get behind that word "learning", to discover what goes on when people learn, in what conditions they learn best, what situations prevent learning from taking place, and what predictions can be made about a person's learning.

Teachers necessarily devise their own "explanation" of learning, because it is an unfortunate fact that not all children—even in the most selective of grammar schools—learn as quickly and efficiently as we wish. Failure to learn is commonly attributed to a lack of "grey matter"—a simple neuro-physiological explanation about which we usually have no evidence except the failure itself, so that again we are in danger of falling into a tautology. The favourite explanation, however, is in terms of the child's moral perversity: he either does not want to learn or he is too lazy. We may admit that many such issues are, in the final resort, moral issues; but even the law recognises limitations to a child's responsibility for his behaviour, and it is patently a teacher's obligation to inquire when and how learning may be assisted. It is with such inquiries that our articles are concerned.

Our contributors are already well known. Sir Cyril Burt has devoted a life's work as teacher, inspector and professor to the development of educational psychology. He provides what is probably the best available summary of the traditional British position in the field of learning, bringing it up to date with a lucid account of his own recent researches. No apology need be made for the inclusion

of rather more statistics than is usual in this journal. During the second and third decades of this century factorial analysis was developed, largely by Sir Cyril himself, as a means of providing a rigorous and empirically based system of psychological classification. In effect, it served to fill the gap left by the discrediting of the older faculty psychology, in that it defined the categories in terms of which further work could be developed. But factorial analysis provides us only with "snapshots", as it were; it does not take into account the dimension of time (except in certain special cases), nor was it ever intended to do so. In order to obtain "motion pictures" we must turn to other techniques; and this is what we have done during the post-war years. Particular attention has been paid to the learning process: some psychologists have described learning in terms of conditioning, some have used gestalt psychology, and some have turned to developmental theories such as that of Piaget. The statisticians have produced "stochastic" theory, which, as Sir Cyril shows, adds a "dynamic" aspect to psychometrics. Stochastic models are already with us, and an equally brief and clear description of them is not to be found elsewhere.

Professor Morris, the former Director of the National Foundation for Educational Research, illustrates the application of learning theory to social situations by using psycho-analytic concepts to describe the development of the moral self. Dr Pringle writes on the importance of emotion in the development of the ability to learn, giving a review of current theories of motivation and illustrating her points by case histories of children referred to the University Remedial Education Centre. The Centre and some of its work have already been described in earlier issues, but this is the first occasion on which we have published details of specific cases. Teachers will be interested to read more about the work of an institution notable for the pioneering spirit by which it has always been informed.

H. J. HALLWORTH

THE LIMITATIONS OF A
SCIENTIFIC PHILOSOPHY (1)

by SIR HERBERT READ

Man can embody truth, but he cannot know it
W. B. Yeats

A DISTINCTION which runs through the whole development of human thought has become blurred during the past two hundred years. Implicit in all ancient philosophy, acknowledged by medieval scholastics and the natural philosophers of the Renaissance, and even by Locke and Newton, is a difference of kind, if not of value, between *wisdom* and *understanding*. By wisdom was meant an intuitive apprehension of truth, and the attitude involved was receptive or contemplative. *Intellectus* was the name given to this faculty in the Middle Ages. Understanding, on the other hand, was always a practical or constructive activity, and *ratio* was its name— the power by means of which we perceive, know, remember and judge sensible phenomena. Philosophy was conceived as an endeavour to perfect this constructive power of the mind as an aid to wisdom. To clarify perception, excluding all distortions due to emotion and prejudice; to analyse statements so that our knowledge is consistent; to establish facts, so that our memory is consolidated; to bring the inquiring will into harmony with the intuitive intellect, so that our judgment is true and constant—such have been the aims of all who called themselves philosophers.

I do not propose to review the great debate which we associate with the names of Descartes, Locke, Hume, Leibniz and Kant. That argument, which is essentially an inquiry into the meaning of existence, still goes on, as the works of Husserl, Heidegger and Sartre indicate. But at some point in the development of human understanding—and it was certainly not before the time of Kant—a tendency to radical empiricism developed. One might also call it a tendency to radical scepticism, for it was based on a determination not to ask questions that cannot be answered without indulging in speculation—the only acceptable answers are those which are based on empirical observations, and which can be checked or proved by

repeating the same empirical observations. Human understanding was redefined in this restrictive sense, and wisdom disappeared from the philosopher's vocabulary. Since the Lord was no longer feared, one might say, wisdom could have no beginning.

The determination of scientists not to ask questions that cannot be answered empirically, and proved logically, has led to a drastic shrinkage of philosophical territory: philosophy is now identified with logic, deductive and inductive, and it is the claim of the scientific philosophers that no other mental activity deserves the name of philosophy. Logical formulas have taken the place of what the scientist calls "the picture language of speculative systems", and on a diet of such dry dog biscuits modern man is asked to undertake his spiritual Odyssey.

One may observe that concurrently with this development science itself, in the representative field of physics, has retreated farther and farther from a direct reliance on sense data, and though rigorously maintaining its principle of verifiability, constructs an invisible world of atoms as remote from normal experience as the unseen stars. It is possible to maintain, paradoxically, that science has become speculative, and art empirical, for truth, as Saint-Exupéry said in a brilliant aphorism, is not what we discover, but what we create.

We may admit, with the logical scientist, that it is an illusion to assume that the human mind can have any direct access to truth— truth in Plato's sense of a pre-established harmony waiting for our intuitive understanding. But what we must not admit is that knowledge is only knowledge when it is based on those elements of perception that can be reduced to measurements and verified in a laboratory—so-called functional knowledge. Science functions within the limits of its sign-system—that is to say, it must confine itself to the cognitive content of its particular kind of language; but beyond this scientific sign-system, quite apart from it, is the symbolic system of art, which is also a particular kind of language with a cognitive content.

I am not writing for philosophers and, indeed, I do not claim to be a philosopher myself. As I proceed, therefore, I must make clear in what sense I am using terms that have a technical philosophic connotation—this phrase "cognitive content", for example. When in doubt I run to a dictionary to confirm that my use of the word has some justification in general usage; and there I find cognition defined as knowledge in its widest sense, including (a) non-propositional apprehension (perception, memory, introspection, etc.—note that

etcetera); as well as (b) propositions or judgments expressive of such apprehension (2). What in this jargon is called non-propositional apprehension would include among its "cetera" the intuitions of the artist—of the poet, the painter, the sculptor, the architect and the musician—and may I make it clear that I shall be using the words "art" and "artists" indifferently for any of the arts?

Could anyone for a moment doubt that the artist, in his acts of apprehension, is making a statement with a cognitive content? The answer is yes—the scientific philosopher usually makes precisely this assumption. He assumes that his own propositions or judgments are the only statements with a cognitive content—that all other propositions or judgments are either pseudo-statements (his favourite term for the statements of idealist or rational philosophy), or are a picture-language expressing subjective desires, and therefore not propositions or statements of any kind. A different school of thought to which I myself belong, a school entirely ignored by the scientific philosopher, maintains on the contrary, in the words of one of its few representatives, that "the artistic impulse is an impulse of cognition; artistic activity, an operation of the power of achieving cognition; the artistic result, a sequel of cognition" (3).

I am going to take as a representative of scientific philosophy the famous logical empiricist Hans Reichenbach—I do not think his representative standing would be challenged by the scientists. I take him for the practical reason that in his last work, *The Rise of a Scientific Philosophy* (4), he has given us a clear summary of the claims of a scientific philosophy.

That phrase is not so innocent as it sounds. By a scientific philosophy is not now meant a grammar of science, such as, in my youth, writers like Karl Pearson provided. The phrase means what it says—a philosophy that bases itself on scientific method, just as physics bases itself on scientific method. Gone is the idea that philosophy is in some way a generalisation of scientific knowledge; and gone, of course, the Kantian claim that philosophy is knowledge based on independent powers of reasoning—powers independent, that is to say, of sense observation, powers of insight or intuition. The basic assumption of a scientific philosophy is that philosophy is the product of the power of abstraction, and must be confined to abstract statements that have been verified by logical analysis. Such a philosophy, says Reichenbach, "does not offer the persuasive solutions of systems that talk picture language and appeal to aesthetic desires. It presents answers understandable only to a mind trained

in abstract thought; it requires that its disciples study every item with the precision of the engineer and the scrutiny of the mathematician. But to those who are willing to submit to these requirements it offers the reward of an intellectual insight of amazing proportions" (5).

We must not expect truth or certainty from such a philosophy. Fundamentally the scientific philosopher does not believe that a comprehensive truth is possible. Truth is a predicate of statements, he says; certainty is inseparable from emptiness; there can be no synthetic *a priori*. The speculative philosophy of the past, says Reichenbach, "is characterised by a *transcendental* conception of knowledge, according to which knowledge transcends the observable things and depends upon the use of other sources than sense perception". Scientific philosophy (on the other hand) rejects such a conception of knowledge in its entirety and constructs instead "a *functional* conception of knowledge, which regards knowledge as an instrument of prediction and for which sense observation is the only admissible criterion of non-empty truth". Not even mathematics will satisfy this conception of knowledge—"it is self-deception to believe the human mind to have a direct access to any kind of truth other than that of empty logical relations". Verifiability is the only ideal of the scientific philosopher, who "must learn that probable knowledge is a basis solid enough to answer all questions that can reasonably be asked".

Scientific philosophy, then, is a philosophy of logical formulas, and all the rest, metaphysics and ethics, is to be dismissed as the picture-language of speculative systems. The scientific philosopher does not even bother to discuss such systems: he dismisses speculation as such, as a pretension to knowledge which cannot be verified: sense perception is the only basis of knowledge, and every statement of an observed fact must have a logical meaning and must be capable of being checked by further observation. "A sentence", says Reichenbach, "the truth of which cannot be determined from possible observations is meaningless. Although rationalists have believed that there are meanings in themselves, empiricists at all times have insisted that meaning hinges on verifiability. Modern science is a documentation of this point of view."

What, in this context, is meant by an observation, or an empirical fact? Possibly the whole of my criticism of scientific philosophy turns on this point.

A scientist in his laboratory examines natural phenomena—it may

be a frog's leg or the eye of a beetle; it may be a spiral nebula as seen in a 200-inch telescope or the X-ray diffraction pattern of uranium. He makes thousands of observations of this kind, classifies them, and when a verifiable sequence of events begins to emerge from this classification, he *abstracts* a meaning. This meaning is not an assertion of fact: the only facts are the discrete observations he has made, the data provided by his instruments. But he dignifies his abstracted meaning, his guess, with the name of philosophy. "Philosophy", Reichenbach says, "is no longer the story of men who attempted in vain to 'say the unsayable' in pictures or verbose constructions of pseudo logical form. Philosophy is logical analysis of all forms of human thought: what it has to say can be stated in comprehensible terms, and there is nothing 'unsayable' to which it has to capitulate. Philosophy is scientific in its method; it gathers results accessible to demonstration and assented to by those who are sufficiently trained in logic and science" (p. 308).

Reichenbach contrasts the precision of such meanings abstracted from observation with what he calls the persuasive solutions of "picture-language"—systems of thought which appeal, not to the intellect, but to "aesthetic desires". I will first examine the scientist's conception of this other mode of expression, which for Reichenbach covers not only art, but also ethics and presumably theology (6), and then give my own alternative conception of the language of art.

It is not until very late in his book that Professor Reichenbach gives us a definition of art, and I must ask you to examine it with me because I believe it illustrates an extraordinary misconception of the nature of this human activity, a misconception not confined to scientists. "Art", Professor Reichenbach declares without any qualification, "is emotive expression", and so that we may be in no doubt as to what he means he expands this dogmatic statement in the following way:

"Aesthetic objects serve as symbols expressing emotional states. The artist, as well as the person who looks at, or listens to, the works of art inserts emotive meanings into physical objects consisting in paint spread on canvas or sounds produced by musical instruments. The symbolic expression of emotive meanings is a natural goal, that is, it represents a value which we aspire to enjoy. Valuation is a general characteristic of human goal-activities, and it is advisable to study its logical nature in full generality, not restricting the analysis to art" (p. 313).

Valuation, in the scientist's view, is not a scientific activity: not

a logical act: it is merely an affirmation of desires, and if Professor Reichenbach were right in assuming that the artistic activity is nothing but "the insertion of emotive meanings into physical objects" he might then be right to dismiss it as of no philosophical significance. But Professor Reichenbach's definition is only one of many possible definitions of art, and one that is now old-fashioned and discredited. In aesthetics we should call it the expressionist theory, and it has had more vogue in Germanic than in Latin countries. Benedetto Croce gave it an idealistic formulation which made it completely unreal, and since Croce's time no-one has seriously entertained it in the literal sense, unless it be some American behaviourist. That the work of art is in some sense an embodiment of feeling is not to be denied. But what certain philosophers of art now maintain is that the function of the work of art is not to present feelings for enjoyment, but rather to cognition. Paradoxically, the feelings in a work of art are not felt. Art, as Otto Baensch has said, "like science, is a mental activity whereby we bring certain contents of the world into the realm of objectively valid cognition; . . . it is the particular office of art to do this with the world's emotional content. According to this view, therefore, the function of art is not to give the percipient any kind of pleasure, however noble, but to acquaint him with something he has not known before" (7).

Of course, in one general sense art is expression: that is to say, it uses a system of signs to communicate a meaning. So does science and every other human mental activity. But the nature of the activity is determined by its purpose or function, and Reichenbach is wrong in asserting that the function of art is to make a valuation or satisfy a desire. The fundamental purpose of the artist is the same as that of the scientist: to state a fact. And the fundamental purpose of attending to works of art is not to enjoy values, but as in science to establish truths.

I can think of no criteria of truth in science that do not apply with equal force to art. Art has its language of symbols whilst science has a language of signs, but a symbolic language also has its strict system of rules, based on convention. The creative imagination has a logic no less strict than the logic of scientific reasoning, and the same ideal of clarity is held by both activities. Further, there is no sense in which verifiability is a necessary constituent of scientific method in which it is not also a necessary constituent of artistic creation. Great works of art do not survive through the centuries as expressions of desire or as valuations of behaviour. They state such universal truths

as the artist is capable of creating; they search for no certainty and express no ideal. They are inventions, concretely physical. Emotions may be inserted into them: they may be clothed in appearances of good and evil, of tragedy and joy; but these expressive functions are not the verifiable content of the work of art. What is verifiable is a perceptible form which communicates a notion of being, a man-made piece of reality.

It is amazing that scientific philosophers, in the face of the historical facts, can bring themselves to dismiss the artistic achievements of mankind as no more than a picture-language expressing emotions of a subjective nature. The fact that the art of prehistoric man is still a language we can understand, whilst the magic that was the prototype of science has perished without a trace; the fact that monuments of Egyptian and Assyrian art are still statements that enlighten us as to the nature of reality, while the science of these peoples merely inspires our curiosity and amusement; the fact that Greek drama is still a valid witness to the tragic destiny of man while Greek science is now the dusty preserve of archivists; the fact that every great civilisation in the history of the world has created works of art whose universal forms are of eternal significance, while the sciences of these same civilisations are merely rubble upon which successive generations have built their shaky hypotheses—all this should have induced a little humility among the scientific philosophers of our own time. But the scientific philosopher of to-day has no humility; possessed by the hubris of the ancient tyrant, he perfects those machines of destruction which now threaten the very existence of mankind; and if in this tragic situation we mention words like life and love, truth and beauty, he asks us not to speak to him in a language he cannot analyse.

The scientific philosopher, we are told by Professor Reichenbach, regards empirical science as the ideal form of knowledge and insists that sense observation is the only source of knowledge; that it is self-deception to believe the human mind to have a direct access to any kind of truth other than that of empty logical relations (p. 75). This is virtually a denial that there are any absolute or universal values that can have meaning. We can make emotive noises and call them poetry; we can write a metaphorical language and call it ethics; we can create beautiful objects and get a sensational shock from them; but all these activities, according to the scientific philosopher, have no meaning because they do not lead to verifiable statements.

What, then, is verifiable meaning: what is a scientific fact? The modern scientist has good grounds for his universal scepticism, for

in the past 70 years the former ground of all his certainties has crumbled. The process began with the Michelson-Morley experiment, which showed for the first time that our terrestrial standards of measurement are not universal; and it ends, for the present, with a tangle of relativity and indeterminacy. Einstein's theory of relativity has been modified considerably since he first enunciated it, but as Sir James Jeans once said (with reference to Weyl's criticisms of Einstein's theory), it is "highly probable that all forces reduce to nothing more than our subjective interpretations of special properties of the continuum in which we live" (8). In short, what the scientist has been driven to recognise more and more is that his observations are not separable from the observer, that subject and object are one. We cannot eliminate ourselves from our observations, and even a scientific method depends on consciousness, which is an unstable element developed by man in the course of his physical evolution, "an organ still infantile", as Nietzsche called it. Language itself and the symbolic signs by means of which any logical analysis must proceed, are instruments developed by this organ for the control of man's environment; instruments conditioned by his environment, and still in a state of evolution. Sign systems are incomplete because our consciousness is incomplete; and the means by which man is continually extending the area of his consciousness, and concurrently his various means of communication, are not scientific but artistic.

Before I point to the consequences of this misconception for education, which is the main purpose of my article, I should like to refer in more detail to that famous observation of Kant's which attributes to man an overall intuition by virtue of which scientific progress becomes possible—the notion that reason must formulate its own *a priori* laws, which are then tested by experiment. It is a notion decisively rejected by the modern scientific philosopher, but not by every modern scientist. Referring to the early experimental scientists, Galileo and Torricelli, Kant observed that they had learned "that reason only perceives that which it produces after its own design; that it must not be content to follow, as it were, in the leading strings of nature, but must proceed in advance with principles of judgment according to unvarying laws, and compel nature to reply to its questions. For accidental observations, made according to no preconceived plan, cannot be united under a necessary law. . . . Reason must approach nature with the view, indeed, of receiving information from it, not, however, in the character of a pupil, who listens to all that his master chooses to tell him, but in that of a judge,

who compels the witnesses to reply to those questions which he himself thinks fit to propose." This *a priori* rationality, a principle that sustained science so long as the corresponding principle of causality was accepted as universal, has now been overthrown, and in its place we find only statistical averages, or "posits of probability". But Kant's categories serve to show that the human mind is capable of a certain independent activity. It is not necessarily conditioned by its environment: it can ask questions—it can formulate ideals, it can, in one word, imagine. It can reach beyond itself, towards values which are not actual, but which become actual in the course of evolution. Such independent mental constructions the scientist calls "goal activities", and he is rather contemptuous of them. "The choice of a goal", says Reichenbach, "is not a logical act. It is the spontaneous affirmation of desires, or volitions, which come upon us with the compulsion of inescapable urges, or the animation of prospective satisfaction, or the smooth naturalness of unquestioned habits"; and he concludes peremptorily: "There is no point in asking the philosopher to justify valuations." To which we might reply with Nietzsche that this is the only activity worthy of a philosopher, for "the criterion of truth lies in the enhancement of the feeling of power" (9); or, since Nietzsche's use of the word "power" has led to such a complete misunderstanding of his philosophy, let us say in the simple words of another scientist (Victor von Weizäcker) that "in order to explore life, one has to take part in life". Truth is not a verifiable abstraction: and to equate such a necessary word with "empty logical relations" is to reduce philosophy to a parlour game. Philosophy, to be worthy of the name, is not a game of any kind: it is a mode of action, a free choice of facts in a world of facts. But the philosopher does not necessarily choose his facts in the scientist's laboratory: instead, he may create poetic symbols, which are facts of another kind. He invents a myth, like the *Republic* of Plato, or Augustine's *City of God*, or Nietzsche's *Zarathustra*. Fundamentally, as Sartre says, man is the *desire to be*, and the existence of this desire is not to be established by an empirical induction, but by self-realisation. "There is not first a single desire of being, then a thousand particular feelings, but the desire to be exists and manifests itself only in and through jealousy, greed, love of art, cowardice, courage, and a thousand contingent, empirical expressions which always cause human reality to appear to us as *manifested by a particular man*, by a specific person" (10). Philosophy is a human activity, not a disembodied energy.

It has always seemed to me that the reduction of science to indeterminacy, and philosophy to a game with counters, far from discrediting idealism, has made it all the more necessary. If, as Reichenbach says, "the happenings of nature are like rolling dice rather than like revolving stars; they are controlled by probability laws, not by causality"; if the scientist "resembles a gambler rather than a prophet"—and I accept the modern scientist's own description of himself—then the prophet or some person other than the scientist, perhaps the artist, becomes all the more necessary. Someone must make a choice; someone must say that in this world of rolling dice, "I will act as croupier and impose my system. The system will not be real: it will bear no relation to the laws of probability. But it will work, and I shall believe in it. More than that; it will enable me to believe that life has some purpose. I have made a choice, whether moral or aesthetic, and if the scientist still persists in saying that it bears no relation to truth, that my choice is merely a 'spontaneous affirmation of desires', I can say, with more conviction than the scientist can muster, that the desire I affirm is the desire to live more abundantly, that I live abundantly in my acts of creation, and that this is the only philosophical activity that has any positive meaning for mankind."

Scientific philosophers like Reichenbach always assume that our desires are selfish, or hedonistic—psychological urges for food, sex, or rest. Reichenbach writes of "the creative impulse driving a man to write a book or to make his own fence for his garden"—individualistic activities, of no consequence to his fellow-men. In fact the creative impulse finds an outlet not only in the context of a physical world, but also in the context of other human beings. Every choice, moral or aesthetic, is, as Sartre has so well demonstrated, an act which involves the whole human race. Man finds himself in a specific situation—the social situation of his time—and must every day exercise his responsibility. He marries or does not marry; has children or does not have children; whatever he does, it is impossible to evade the problem of responsibility, which is also the problem of creative action. Man does not necessarily act according to the established moral codes. Sartre suggests that we should compare his moral decision to the creation of a work of art. The artist does not act according to established rules; no-one tells him what kind of picture to paint. There are no *a priori* aesthetic values which the artist strives to incorporate in his pictures; the values declare themselves, in the coherence of the picture when it is completed, in the

relations established between the desire to create and the result attained. The result is not arbitrary—it is successful or it is a failure, and one can only judge it when it is finished. It then takes its place among the rest of the artist's works: then we discover that it has form, style, beauty—values which are not arbitrary but constructive (11). It is the same with man's moral decisions: they too do not follow a pre-established code, but they are not arbitrary: They are what Keats called "a straining at particles of light in the midst of a great darkness" (letter of 14th February 1819), and are admirable to the degree that they express not abstractions like goodness, truth or beauty, but a particular man's sensuous apprehension of life itself, in its concreteness, its bloom, in its scintillation.

Non-propositional apprehensions—let us now take this dictionary phrase and give it our own further definition. A dictionary elaborates its definitions in conceptual terms—although one famous lexicographer took occasion to kick against a stone and define reality in that non-propositional way. "Perception, memory, introspection, etc." —meaning is always conceived as a mental process, communicable and communicated in words. But I am going to suggest that neither the logical idea nor the mental image is the datum in non-propositional apprehension; what is present in consciousness is the created object. Presumably the scientist will say that what is present to consciousness in his empirical observation is also not a logical idea or mental image, but an empirical fact, an object observed in all its concreteness. But I called my object a "created" object, whereas the object in scientific observation is "given"—scientific method is an immense effort to preserve its givenness, and to exclude any element of subjective interpretation. But the artist too will pride himself on his objectivity —the object he creates, he will say, is the objective correlative of an emotion, a mood, an idea, or an intuition; in brief, the realisation of a state of consciousness. His art, his discipline and craft, are concentrated on the purification of his meaning, on the presentation of an exact symbol.

Consciousness, as William James long ago pointed out, does not exist apart from the object we are conscious of; but we can induce consciousness by seeking a correlative for feeling (emotion, mood, idea, intuition). That is essentially what the artistic process amounts to: it is the presentation to consciousness of an exact correlative for feeling, but the correlative presented to consciousness is always a concrete object, a plastic configuration, sounds, colours, shapes, masses accessible to sensation. The object the artist creates, there-

fore, corresponds to his state of consciousness: it is his consciousness of that object; it was not first present *in* consciousness, and then expelled like an egg: it grew into consciousness as it germinated, as it was plastically formed. It was matured by an awareness of a context, of a situation, of a matrix; but it came into existence as a created thing, as a creation. Reality, in my sense of the term, is what is in this way created: the objects that grow into consciousness, and remain there in all their concreteness. By comparison the facts *discovered* by the scientist are unreal—where did they come from? who put them there? Nothing to the mind of an artist could be more sophisticated than mathematical formalism, or a belief in the exclusive reliability of sense observation.

"Truth is a predicate of statements", says the scientified philosopher. But he reduces all verbal statements to error or emptiness, and calls the desert a philosophy. The modern artist, who is always consciously or unconsciously an existentialist philosopher, says that truth is a predicate of the creation of specific symbolic objects. It has nothing to do with a linguistic reaction between the sense organs of the human being and an encompassing universe, as the scientist assumes. The artist knows that his sense organs are quite incapable of encompassing empirically any external reality; but he knows that he is a part of the universal process, a biological entity engaged in the adventure of existence; and by knowing this, by becoming aware of the growing-point that he is in this universal process, he is able to manufacture some grains of the real—just as the photogenic cells of a plant manufacture certain real substances from the air or the ether or the cosmic rays. The two processes are analogous rather than identical, but the work of art is real in the sense that an atom of nitrogen is real.

Works of art are discrete entities, but nevertheless they can combine into discourse, into symbolic coherence. This is best illustrated in the art of music, where each harmonic relation of tones is already a truth created; but such themes can be developed—created facts added to created facts in a created order—until a whole symbolic discourse of sound, a symphony, is present as a reality. The process in the plastic arts is similar, for the painter proceeds from one established tonal relation of colour to the next, modifying each as the creative process proceeds, until a self-contained unity is achieved— what is thus achieved may be a portrait or a landscape or an abstract object that has no reference to the world the scientist observes; but to make it "real" the artist does not have to take a pump and inflate

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it with emotion—insert an emotive meaning into the physical object, as Reichenbach suggests: the object has whatever meaning the spectator may read into it, but as an object its reality resides in its harmonies and proportions, which are as verifiable as the logical formulas of the scientific philosopher. What constitutes the *value* of a work of art is not its expression or affirmation of desires or the choice of goals, but the fact that there exists a real object, something snatched from the flux of feeling and *made* to exist, objectively. Its existence, its persistence, is its reality.

In this way the history of art must be conceived, as Max Scheler says, "as a series of expeditions against the intuitable world, within and without, to subdue it for our comprehension: and that for a kind of comprehension which no science could ever provide". The mission of all true art is "not to reproduce what is already given (which would be superfluous), nor to create something in the pure play of subjective fancy (which can be only transitory and must necessarily be a matter of complete indifference to other people), but to press forward into the whole of the external world *and* the soul, to see and communicate those objective realities within it which rule and convention have hitherto concealed" (12). I would amend these words of Scheler's only in one detail, for the objective realities of art are not seen by the artist and then communicated: seeing is creating, and creation is communication: the objective realities come into existence in the act of creation.

I am proposing to you a philosophy which, though it has its exponents like Cassirer and Langer, Heidegger and Sartre, is totally distinct from the scientific philosophy of Reichenbach and indeed the philosophy prevailing in practically all the academic institutions in this country. I suppose it might be called the existentialist philosophy and I find much support for it among contemporary existentialist philosophers. But I hesitate to call it existentialist philosophy because I did not derive it from the existentialists, but from long meditation on the facts of art—the historical facts and the psychological facts. I prefer therefore to call it aesthetic philosophy, and I claim that it is based on data that are just as objective as the empirical facts of science. A Romano-Egyptian portrait on a mummy case is a fact as real as the contemporary propositions of Euclid; Vesalius in the first half of the sixteenth century founded the science of human anatomy, but a century earlier Jan van Eyck had anatomised the soul of man in his portraits, and who shall say which is the most real fact—a dissected corpse in the hospital St. Jean at Bruges or the portrait of

Margaret van Eyck in the Musée Communal of that same city? The scientist will claim that the circulation of the blood is a verifiable fact, but what then is the van Eyck portrait—a pseudo-statement as the scientific philosopher would say, "a symbol expressing an emotional state"? Why, then, do we call Van Eyck "the most exhaustive and the most tantalising interpreter of human nature" that ever lived (Panofsky)? The widest claim that can be made for science is that it is the history of nature. The widest claim that can be made for art is that it is the creation of nature—that it brings into existence an entirely autonomous world (13). This is the extreme point of view of André Malraux; for my part I am content to claim that it extends the existing world, enlarges it with new facts, with elements that give continuity to the human experience.

I hope these remarks will not be taken as an attack on science—I am attacking only the pretensions of science: its pretension to be the only sufficient basis of philosophy, or to be identical with Reason itself. For the will to truth which has animated, and continues to inspire, the activities of the scientists of the last few centuries we can have nothing but admiration; and though modern science has to some extent substituted a will to power for the will to truth, that is a social or ethical problem which I am not discussing. I am only asserting, with Karl Jaspers, for example, that "dissatisfaction with science is the expression of the will to truth that reaches out beyond the fulfilment that science can provide" (14). Even the choice of subjects for scientific research cannot, as Jaspers points out, be derived from science itself: "Science is not self-supporting. Where it tries to be, it falls into an infinite abyss of platitudes." Jaspers says that fundamentally we want more than science can give, and the danger is, of course, that we fall back on what Reichenbach calls "the picture-language of speculative systems". Jaspers himself has, from the scientist's point of view, succumbed to this danger. But I am not offering you a speculative system: I am merely pointing to the concrete existence of those real and obdurate phenomena that we call works of art, and no philosophy is complete that does not incorporate their evidence.

Equally no education is complete that does not incorporate the evidence of art. I have spent the best part of a life-time protesting that an education that ignores the mental processes which lead to the creation of the most permanent achievements of mankind can be no true education. Our whole conception of education has become functional—conceived as serving the provisional interests of a social

economy and not as a conquest of reality. Our education is not even scientific in the strict sense, for it is not disinterested. Not only are most scientists victims of what Reichenbach calls "the fallacy of vocational preoccupation, which makes a man blind to the exigencies of research outside his own narrow field" (p. 192); their fields of research are chosen from extra-scientific motives—the development of atomic power, for example, or an ideal of mechanical perfection. The scientific conception of education is completely subordinate to valuations, desires, goals—what Reichenbach, in characterising the unscientific nature of rational philosophy calls "the compulsion of unescapable urges, or the animation of prospective satisfaction, or the smooth naturalness of unquestioned habits" (p. 314). Education to-day is a system exactly corresponding to the technological organisation of our society, and instead of realising and regretting the enormous limitation that such a system imposes on the development of the human personality, we take pride in the inhuman efficiency of such a machine.

The scientific philosopher dismisses the imagination as picture-language, or as a pre-scientific form of thought no longer of relevance in this scientific age. " 'Truth is beauty and beauty is truth' [*sic*]— that is a beautiful statement", says Reichenbach misquoting Keats, "but not a true one." On what grounds does he deny the truth of Keats's statement? Because, he says, the question how to classify art is a logical question—a question of the logical nature of valuation, a question to be studied by the psychologist. But I fail to see in what sense a work of art possessing beauty (and Keats had in mind the mathematical proportions of a Greek vase) differs in logical status from the empirical facts revealed to a biologist through his microscope. Both are material organisations, "silent forms" that can be classified. Both exhibit an order that is fundamentally identical; and if the scientist asserts that the order he discovers in nature is not *meant* to give pleasure, whereas the potter who created the vase had the intention to give pleasure—then I would reply in the first place that the scientist by his own confession does not know whether an intention is present in the order of the universe; and that the intention of the potter was not to give pleasure, but to make a vase that corresponded to his instinct for order. Fundamentally—and I apologise for insisting on what may seem to be a subtle point but which is really the essence of the whole question—fundamentally there is no possibility of making a distinction between science and art in terms of valuation. The work of art is just as much or just as little an empirical

fact as the structure of a molecule of carbon; the empirical facts of science are just as much a question of choice, or of chance, or of inspiration, as a work of art. I refuse absolutely to surrender the empirical status of the work of art.

But the empirical status of the work of art has been ignored by our technological age, by our rulers and educators. It is possible that many of us have been educated, and called to the vocation of teacher, and yet have been deprived of the knowledge of one-half of reality: we have been deprived of the beauty that is truth, of the truth that is beauty. It is a mistake, of course, to use these emotive words. What they mean in epistemological terms is that we have been deprived of a mode of communication, "a mental activity whereby we bring certain contents of the world into objectively valid cognition", to use Otto Baensch's words again. We have been denied an aesthetic method of apprehension whose functions are complementary to the logical method of definition and verification. We can get away with this half-experience, this half-knowledge, in a technological civilisation. But what are the values of a technological civilisation? What wisdom has it to offer us? It has a philosophy which is called scientific to correspond with a social organisation that is functional, but does this philosophy answer those questions that have puzzled humanity throughout the ages, and that still puzzle any thoughtful man or woman to-day—the questions asked by the earliest Greek philosophers, by Pythagoras and Heraclitus, Zeno and Parmenides, Thales and Empedocles: the only questions worthy of the strife of thought: Why does anything exist? Why does not nothing exist? What elements in existence justify the absurdity of continuing to live? To which I have added this final question: Is it possible that life acquires meaning only to the extent that man is creative?

REFERENCES

1. This article contains the substance of the first Annual Institute of Education Lecture, delivered on 10th October 1957.
2. Runes, D. D. (ed.), *The Dictionary of Philosophy*, London, Routledge, 1944.
3. Fiedler, C., *On Judging Works of Visual Art*, trans. Schaeffer-Simmern, H. and Mood, F., University of California Press, 1949, p. 76.
4. References are to the paper-bound edition, University of California Press, 1956.
5. op. cit., p. 121. It is not clear why the word "insight" is used in the last sentence: it does not belong to the vocabulary of the scientific philosopher.

6. As far as theology is concerned, the limitations of a scientific philosophy have often been demonstrated, but nowhere so ably as by Mascall, E. L., *Words and Images*, London, Longmans, 1957. What Dr Mascall has to say about the nature of sense-experience (for example, the non-sensory or the intellectual element in perception does not consist simply of inference, but of apprehension) is very relevant to the present argument. When he insists (p. 112) "that images, like language, have an epistemological character and function which is not exhausted in terms of coding and decoding; the image or the image-complex, like the word or the word-complex, is an *objectum-quo*, by the entertainment and contemplation of which the mind is able to enter into intimate cognitive union with the reality of which it is a manifestation", he is virtually anticipating my whole contention.

7. Langer, S. K., *Feeling and Form*, London, Routledge, 1953, p. 19. Baensch's original article entitled "Kunst und Gefühl" appeared in *Logos*, 1923.

8. *Enc. Brit.*, 13th ed., Supp. Vol. III, p. 330.

9. Quoted by Lea, F. A., *The Tragic Philosopher*, London, Methuen, 1957, p. 278.

10. Sartre, J. P., *Being and Nothingness*, trans. Barnes, H. E., London, Methuen, 1957, p. 565.

11. Cf. Sartre, J. P., *L'existentialisme est un humanisme*, Paris, Nagel, 1946, pp. 74-79.

12. Scheler, M., *The Nature of Sympathy*, trans. Heath, P., London, Routledge, 1954, p. 253.

13. Malraux, A., *Les Voix du Silence*, Paris, Gallimard, 1952, p. 614.

14. Jaspers, K., *Reason and Anti-Reason in our Time*, trans. Godman, S., London, S.C.M. Press, 1952, p. 33.

THOUGHT AND EXPERIENCE

by M. V. C. JEFFREYS

Professor of Education and Director of the Institute of Education, University of Birmingham

S PEAKING at the recent anniversary dinner of the Royal Society, Lord Hailsham condemned the popular fashion of ridiculing the intellectual "as an unpractical, other-worldly sort of chap, unfit for the society of successful politicians, hard-headed men of business, simple soldiers, silent sailors or working journalists and all the other kind of folk who make such a botch of this practical world by refusing to think about the theoretical problems involved in the art of living".

While applauding Lord Hailsham's sentiment, we may wonder whether this traditional fashion of ridiculing the intellectual is not already out of date, even in this country where practicality has been credited with magical virtue.

Twenty years ago Dr Karl Mannheim urged upon us the necessity for greater "awareness"—that is to say, self-critical analysis of our actions and the beliefs associated with them. We must know what we are doing and why we are doing it. We cannot successfully manage the business of living at a merely empirical level; we must have theory to give meaning and coherence to our practice, though our theory must grow out of, and remain in living relation to, our experience. In Mannheim's words: "The contemporary social order must collapse if rational social control and the individual's mastery over his own impulses do not keep step with technological development."

Since Mannheim wrote *Man and Society* a second world war and its consequences have forced us into a new attitude of self-examination, and few people in this country would nowadays dare to claim that abstention from speculation is a condition of practical success. We may still believe that the French are incapable of governing themselves because they are too logical. But we can no longer believe the converse, that illogicality guarantees the success of democracy.

In the field of education, we would not dispute the value, to the practical teacher, of a philosophy of his craft. Without philosophy,

how can educational practice have direction, purpose and consistency? Without philosophy, how can the teacher deal adequately with his pupil's dawning interest in the great questions (concerning the nature and purpose of human life) which have exercised the human mind through the ages? Without philosophy, how can the teacher achieve in his own personality the stability and coherence which he needs if he is to guide the young?

If we concede the need for philosophy to give meaning and purpose to our work in education, we must be prepared to ask how in fact theory and practice, thought and experience, are interrelated. This is a complex inquiry, and a good many questions have to be asked, concerning the relation, not only between ideas and actions, but also between the individual and the community (with its pattern of accepted attitudes) to which he belongs. The object of this essay is to make some examination of the relations between thought and experience.

The question how man differs from the other animals is, I suppose, necessarily as old as man. The opinion that man alone wears the crown of reason is older than Plato. So also is the painful knowledge that crowns are heavy things, uneasy on the heads that wear them.

It is natural to man to reflect upon this human faculty of reason—the faculty of thinking about our experiences and systematically constructing maps or pictures of experience. The purpose of these maps or pictures is to help us to understand our experience; but as often as not they also create complications of their own.

Laborious, even painful, as the business of thinking still is to man, we cannot escape the obligation of systematic thought and remain human. Least of all perhaps can the teacher afford to neglect the problem of the proper relation between thought and experience—at his own level, and at the child's level.

At the level of children's learning, we all know that the pendulum of opinion has swung from the didactic to the heuristic. The emphasis nowadays is on learning by doing. And we have to inquire, in the context of this new emphasis, what is the place of instruction and at what stage of learning should come that systematisation of ideas derived from experience which we may call the "grammar of the subject", whether the subject be French, music or carpentry.

When we think of the teacher's own attitude to his work, we have to ask what is the value of educational theory, philosophical or psychological. Does not the principle of "learning by doing" apply equally to the business of becoming a teacher? Professor Arnaud

Reid in one of his essays refers to "the extraordinary assumption . . . that it is better not to think about, and beyond, the job of teaching, or about education, or why one is doing it; and that, somehow, being a 'practical teacher' absolves one from the necessity. It is obvious, it goes without saying, that teaching is learnt in the practice of it; no-one disputes that. What is *not* true is the assumption that there is a sort of magic in 'practicality' which makes practicality infallible. It is nothing of the kind. In human actions there is always an idea and a purpose, and the important question is whether the purpose is acknowledged or critically scrutinised, or whether the doer is so cocksure that he does not deign (or he may be afraid) to ask himself what his own assumptions are, and whether they will stand up to examination."

These are some of the questions which, as teachers, we ought to be asking ourselves. They are not questions which can be answered on a moment's reflection. Rather they are questions that ought to be in our minds throughout our lives as teachers, if we are to remain alive above the neck.

What I do want to do here is to pursue a little further the central question of the relation between thought and experience. It is a question that plunges us into most of the problems and controversies of philosophy.

Very broadly speaking, the great historic systems of philosophy have split on the question whether priority should be given to experience or to thought. On the one hand are those philosophies (not unrepresented among the Greeks but chiefly connected with the rise of modern science) which lay stress upon scientific method—experiment and verification in sense experience. Such are Pragmatism, Logical Positivism, Dialectical Materialism, Scientific Humanism, Behaviourism. They distrust absolutes and lend themselves readily to the view that values (moral and other) are conditioned by and relative to circumstances—especially sociological circumstances.

On the other hand are those—mainly older—philosophies (Platonism, Thomism, Hegelianism) which lay stress upon deductive and speculative reason. They do not ignore change and the relativism of events. (Indeed Plato himself was so much immersed in contemporary experience that his whole philosophy may be regarded as his response to the world in which he found himself, and in particular to the question posed by the condemnation and death of his great and good master, Socrates.) But they believe in *absolutes*, which are anathema to the empiricists. For the absolutists there are truths

which hold good everywhere and always, and which, if not discoverable apart from experience, certainly reach beyond the changes and chances of this mortal life. Writing of Plato, Sir Charles Morris says: "He was under no illusions that the body (i.e. sensory experience) could be discounted or ignored. The body must play its part, though eventually it must be left behind. The soul may have been aware of pure and beautiful ideas before birth; but these beautiful ideas could only reach it again in life, between the cradle and the grave, through the body. Through the sensing of circular things you can come to the idea of the circle in heaven; and through the perception and love of beautiful faces and beautiful people you can come to the idea of pure beauty. When you come to acquaintance with these pure ideas you will be moved by them in the life of action, and, in the end of all, more earthly motives will fall away and you will be moved by them alone. . . . For him nothing but the best will do; everything else is just wrong, and there are no two words about it. Nor is there any doubt about what the best is. There are patterns laid up in heaven, and if we will discipline ourselves sufficiently we can see them. There is no talk in Socrates or Plato about some action being 'right in the circumstances', or 'right for the particular person who did it'. Plato's teachings are straight and without qualification."

I have drawn attention to this broad historical cleavage between types of philosophy only in order to insist that neither thought nor experience can satisfactorily be regarded as subordinate to the other. I am not of course denying that there are quite properly times—phases—in which thinking and experiencing happen separately; one may deliberately hold experience, so to speak, at arm's length in order to examine it; or one may be so wholly immersed in some emotional experience that reflective thought is inhibited until the mood has passed. There are times to inhibit experience (as when doing a mathematical calculation) and times to inhibit meditation (as when playing scrum-half at rugger). I do not seek to deny that we constantly swing between thought and action. What I do deny is that there can be any sustained separation between the two, or (equally important) that either is a mere appendage of the other.

Most of us do not need to be convinced that, however our actions may be influenced by our ideas, our experience is never a mere product of our thinking. There is no doubt a sense in which "nothing is but thinking makes it so". But we have to acknowledge, in experience, a hard core of "givenness", which is what it is irrespective of what we think or want. Experience is something that happens to us.

Yet, equally, we cannot dismiss systematic thought as a mere product of experience—an epiphenomenon or reflection. Thought is part of our *response* to experience, and that response is an activity in which we as independently existing persons are involved and committed. Not only is there a personal quality (for which each of us must take responsibility) about our interpretation of experience, but that interpretation itself helps to create our attitude to future experience and thus to determine our behaviour. Every judgment we make not only discloses the kind of people we are, but helps to make us the kind of people we are becoming.

Thought and experience, indeed, cannot be separated from one another. Each exists in its own right. Neither can be reduced to the other. Without experience there can be nothing to think about. Without thought experience could have no meaning. Thought and experience are aspects of a continuum, and the very words themselves are ambiguous. Thought is part of experience, or at least is part of our experiencing. And experience, at the human level at all events, includes thinking about what we experience.

In this connexion it is interesting to notice the Existentialists who, to a considerable extent, bridge the gap between the two types of philosophy which I began by distinguishing. The existentialists insist on "personal involvement" as much as any of the empiricists. As Dr H. G. Wood says, writing of Kierkegaard: "The idea that the philosopher can construct a comprehensive system without being personally involved in it is an illusion. The real can never be understood as purely rational. It requires an emotional and—even more important—a practical response." At the same time the existentialists find, in their spiritual inwardness, an access to ultimate truth and meaning which is out of range of the empiricists, and which inspires their protest against the escape from personal responsibility in sociologically conditioned collective thinking.

It is easy enough to testify to the unity of thought and experience, as an academic proposition. It is a very much more difficult matter to hold the tension between them in practice. In practice it is easy to cleave to the one and despise the other. It is easy to take a fancy to a system of ideas and close our minds against all conflicting evidence. It is easy to surrender ourselves to the flow of events and meet circumstances by pragmatic, opportunist adjustments. If we do not know what the ultimate purpose of education is, or even if it has one, we can at least provide school meals and conduct intelligence tests. Our ignorance of the aims of education need not inhibit our

perfecting the techniques for selecting children for the various types of education that happen to exist.

As the Editors of the Year Book of Education for 1957 remind us in their Introduction, John Amos Comenius came to this country in 1641. He found a receptive audience prepared by Francis Bacon who believed that the end of knowledge is action and considered it important "straightly to conjoin contemplation and action". But, apparently, Comenius failed to make a lasting impact on English education. He left the country and was soon forgotten. Yet much of what Comenius advocated has now come to pass—the provision of schools by public authority, the kindly treatment of children, the use of empirical methods of learning.

What connexion, if any, have these long-term developments with Comenius? How are we to estimate his influence? "The case of Comenius", say the editors of the Year Book, "crystallises and emphasises the theme which the present Year Book sets out to explore and to analyse. How do philosophical ideas and systems lead to or, perhaps, should one say 'live in company with' educational theories? How far do these theories then influence the practice of teaching and the treatment of children? Are reformers guided by their own ideas or do they usually act first and formulate their theories only later? In general, what is the relation of thought to practice, of contemplation to action, in the area of education?"

I would suggest that the answer to the historical question is the same as the answer to the question of thought and experience in the life of an individual. In both cases, thought and experience are so intimately connected as to be aspects of one thing. Prevailing ideas, beliefs, take shape in the turmoil of events, and themselves exert creative influence upon subsequent events. As in the life of the individual, so in the life of society, it is necessary to healthy living that a live relation be maintained between thought and experience. A society, like an individual, can become mummified in its ideas and die on its feet. And a society can lose its long-range vision, its ultimate beliefs, and live from hand to mouth.

The difficult thing, for an individual and for a community, is to hold the living tension between thought and experience. In that is the adventure, the glory, and the pain, of being human. We must interpret our experience—have a faith to live by and a doctrine in which our faith is set forth. But, at the same time, we must ever be ready to think again—to review our beliefs, and if need be change them. "I beseech you in the bowels of Christ", said Oliver Cromwell

to the Scots, "to believe that you may be mistaken." Even a Scottish Presbyterian may be wrong.

There is but one ultimate loyalty—to Truth. We as teachers must above all things be faithful servants of truth, regardless of convenience, prestige or popularity. And we must never forget that truth—or that part of it which is at any time revealed—is not static. "He who thinks we are to pitch our tent here, and have attained the utmost prospect which this mortal glass wherein we contemplate can show us, that man by his very opinion declares that he is yet far short of truth." So wrote John Milton, three hundred years ago—in an age that was not so punch-drunk with the impact of novelty as to shatter almost the idea of truth.

If loyalty to truth is the most important lesson for the teacher to learn, so it is the most important lesson for him to teach. To bring our pupils into that supreme loyalty is our highest aim.

A few remarks on personal relations may be added by way of postscript. The organic unity of thought and experience is most fully revealed in relations between persons. In personal relations we are most obviously and inevitably involved; we cannot indulge in mere abstract speculation about a personal relationship in which we are actually engaged. At the same time no other kind of experience so effectually stimulates self-examination, and speculation about the meaning of human life. It is in and through personal relations that most of us have been originally awakened to those deeper questionings which lead on to philosophy.

If personal relations are the most significant and thought-provoking kind of experience, that is a way of saying that personal relations are at the very heart of education—that human beings grow, in mind and character, mainly through the influence of one person on another. If that is true, it has implications for the teacher and his job which are challenging if also humbling. For it means that, however important educational techniques may be (and I certainly do not want to underestimate their importance), personal attitudes and personal qualities matter even more. And that is a proposition which Plato, the disciple of Socrates, for all his preoccupation with the supernal realm of pure ideas, could not have wished to deny. It means, too, that the individual personality is a sacred end in itself. "Children are not merely the nation's answer to its need for technicians or housewives." I quote from a recent Report by the British Council of Churches, which goes on: "We are convinced that no approach to children is right which is not instinct with a reverence for them as

persons before God, and a humility incapable of taking advantage of them even for the worthiest of causes."

In an age when modern man goes about in masses, thinks, works, and enjoys himself *en masse*, belongs to organisations *en masse*, and is cared for *en masse*, it is the more needful that the teacher should stand pre-eminently as the guardian of personality with its inalienable rights and its inescapable obligations. "What good can it do a man to gain the whole world at the price of his own soul? What can a man offer to buy back his soul?"

THE PSYCHOLOGY OF LEARNING (1)
by SIR CYRIL BURT

1. THE PROBLEM

IT is generally agreed that a child's educational progress is deter-
mined by two main factors, first, what he inherits as part of his
genetic constitution at birth, and secondly what he acquires after
birth through personal experience, whether at home, at school, or
out of doors. But the amount of emphasis placed on the one factor
or the other has varied enormously from time to time. At the begin-
ning of the century, owing chiefly to the influence of the evolutionary
school—Darwin, Spencer, Pearson, and their disciples—most edu-
cational psychologists laid chief stress on heredity. During the last
two or three decades, however, the doctrines of the old associationist
school have been revived by the behaviourists; and, as a result of
their brilliant experimental work on learning among animals—or
"conditioning", as they prefer to call it—the fashion has swung back
again towards the old utilitarian faith in the power of environment.

Since the war, in view of the drastic reorganisation of the edu-
cational system introduced by the Act of 1944, the battle between the
two opposite camps has spread into the columns of the popular press
and debates in the wireless programmes. "Learning *versus* Heredity",
"Nature *versus* Nurture"—these are the simple war-cries in terms of
which the issue is waged. When a child fails at the 11-plus examina-
tion, parents and politicians are apt to attack what are supposed to
have been faulty teaching or an unfair system of selection; the social
reformer commonly adds that "the lame dogs who thus go to the
wall were lamentably handicapped by the poor economic or cultural
status of their homes, by prolonged ill health or malnutrition, or by
the way the grammar schools are traditionally biased in favour of the
privileged middle classes".

Certainly, when we inquire into the history of individual cases,
we often discover that causes of this kind have been very largely to
blame. On the other hand, few teachers of experience would be
willing to accept them as a complete or final explanation. Every
schoolmaster can cite numerous instances where the child who fails

has come from an excellent home, enjoyed good health, attended regularly, shown himself interested and industrious, and even received special attention from competent teachers in the classroom, and yet somehow seems incapable of mastering what every normal child of his age might be expected to learn. Many educationists, therefore, have concluded that, in addition to the environmental factors, we are bound to acknowledge the existence of wide innate differences in the capacity to learn.

A third group of theorists have intervened from time to time to reconcile the two opposing views by a kind of dialectical reasoning. A sort of higher synthesis is suggested which may transcend the fallacious antagonism between the two rival factors. Is it not conceivable, they say, that the most effective form of training—perhaps the only possible training—will consist, not in erecting a loose superstructure of acquired knowledge and skill on an invisible foundation of inherited tendencies, but in *educing* the latent potentialities of each individual child?

2. METHODS

In any discussion of learning, therefore, we are obliged to start by examining first of all what precisely is the nature of this alleged "capacity to learn". Accordingly, my chief purpose in this paper will be to describe, as simply as I can, the newer methodological techniques available for the investigation of such questions, and the somewhat novel forms which the traditional concepts have consequently tended to assume, in the hope of encouraging teachers to take part in this type of research. The results I shall summarise more briefly towards the end.

At present the issue is usually debated in a purely *a priori* fashion, in the light either of casual experience or semi-popular theory. Psychology, however, has now become a branch of empirical science. And the first step which the scientist takes when attempting to solve such questions is to consider what is the most appropriate mode of approach.

In the past the psychologist has tended to model his procedure on that of the physical sciences. During the last fifty years, however, the methodology adopted by those sciences has witnessed revolutionary changes. Nevertheless, most psychologists and educationists still seem to rely for their notions of scientific procedure on those that prevailed during the nineteenth century. Up to about thirty years ago, the guiding principle was to seek the causes of phenomena in the

underlying structural mechanisms, which were assumed to operate in accordance with simple laws that were at once rigid, certain, and exact. In psychology this doctrine of mechanical determinism was confidently adopted by the older associationists, and found its most vigorous exponents among physiologists like Huxley. It was re-affirmed by the behaviourists under the lead of Watson and by psychoanalysts under the guidance of Freud.

Now both heredity and learning are essentially physiological processes. Hence it is still very commonly argued that, until the geneticist has determined the detailed mechanisms by which mental characteristics are transmitted, and until the neurologist has discovered the neural mechanisms which mediate the acquirement of knowledge and skill, it is useless, and indeed misleading, to try to reach con-clusions about such highly elusive processes. "While the mode of determination is unknown, the inferences can claim no measure of scientific certainty."

My first task therefore must be to show that this methodological standpoint is quite anachronistic. In the physical sciences of to-day the assumption of rigid determination and the search for conclusions claiming absolute finality have long ago been abandoned. "Such views", says Professor Andrade, "are no longer tenable, not because of remediable imperfections in our observations, but in the nature of things: probability, not certainty, governs all things: and the scien-tist's predictions must at bottom always be statistical."

If this is true of physical science it must also be true of psychology. The modern psychologist and the modern educationist therefore must adopt the same statistical approach. However, those who have already ventured to do so have of late incurred the severest criticisms. Mr Kenneth Richmond, for example, assures us that they are "pursuing an *ignis fatuus*" and "quickly get bogged down in abstruse mathe-matics". But the mathematics that the statistical psychologist employs is no more abstruse than that of the modern physicist: indeed, as I shall show in a moment, it is of much the same type; and its function in psychology as in physics is to describe and predict behaviour where the details of the internal mechanism are quite unknown.

Such an approach I hold to be genuinely behaviouristic. Watson contrasted the study of outward behaviour with the study of inner consciousness: "behaviour", we are told, "is precisely predictable; conscious states are not". To my mind the significant contrast is rather between the study of outward behaviour and the study of inner

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mechanisms. Oddly enough, it is those who call themselves behaviourists who have most strongly insisted on the need to study inner structure. "A man must act as he does", says Watson, "as a corollary of the way he is put together and the material out of which he is made" (2). And the American as well as the Russian disciples of Pawlow never tire of telling us that "psychology is simply an obsolescent name for the investigation of the mechanisms and the processes of the human brain: there can be no other scientific mode of approach" (3). But that, I venture to think, derives from a naïve misunderstanding of what the "scientific mode of approach" really is.

3. Organisms and Mechanisms

Psychology, as the study of mental life, is a branch of biology—of the science that studies all forms of life; and British psychologists have commonly expressed themselves in biological rather than physiological terms. However, words like "heredity", "growth", "adaptation", "adjustment to the environment", are apt to suggest rather vague and elusive concepts; and, as this is a technological age, it may be more helpful if in the earlier stages of our discussion we start by thinking of a human being, not as a living organism, but in the first instance merely as a machine (4)—a contrivance like a clock or, better perhaps, a guided missile. In the end we shall be compelled to reintroduce both biological and psychological categories. But they should in my view be invoked only as a last resort. Since machines can now be made which exhibit the phenomena of learning, the analogy I suggest is not so far fetched as it might have seemed in the days when McDougall declared that learning was a unique characteristic that distinguished a conscious organism from an inanimate machine.

Let us then imagine a scientific Greek like Archimedes coming to life and confronted for the first time with one of our familiar machines—say the clock on the mantelpiece. He cannot take it to bits in order to inspect the works, since that would probably ruin it. However, he finds a key which winds it up; he listens to the ticks and watches the movements of the hands, which continue to rotate with a curious regularity for a limited period, and then slow down to a standstill, remaining steady until the whole is wound up once more. He repeats his observations. What conclusions can he draw?

(i) *Goal-seeking.* To begin with, our Greek observer would already be familiar with the idea of equilibrium and the tendency of any dynamic system to seek or return to a state of equilibrium when

disturbed. If you described the process as a form of "goal-seeking", he would grasp your meaning, though he would probably prefer an Aristotelian metaphor like "teleological" (5). If, borrowing an expression from Cannon's *Wisdom of the Body*, you called such a mechanism a "homeostat", he would understand you still better (6). With the clock the second state of rest is the same as the first. With other machines—a clockwork mouse, for instance—it is not the same, since the machine would travel to a new position. But of course we might show him CORA (7), an electronic model in which the process alters the internal mechanism as well, so that on subsequent occasions the model performs its total reaction with ever increasing speed and precision.

(ii) *Self-guidance*. Keeping for the moment to the clock, our observer, on examining his records, would find that there were a number of valid and useful inferences to be drawn about the machine's behaviour: and, with the aid of a little mathematics, not beyond the wits of Archimedes himself, he might even deduce in general outline the plan on which the apparatus had been constructed. He could infer, for example, first that there was something responsible for the drive (though he might not be sure whether it was a spring, a weight, or possibly an electric battery if he had seen such a thing), and secondly that there were certain structural devices which controlled and adjusted the resulting activities—geared wheels and levers which reduced the motion to the requisite speed, and an audible escapement which kept it uniform, so that the two visible pointers moved, as it were, in time with the sun, the smaller making two revolutions in the course of a day and the larger twenty-four. If you told him that other types of machines had a "governor" which regulated their rate automatically by a supplementary process of "feedback", that too would be within his comprehension; and he would probably remind you that Plato had a word for it—"cybernetic". Finally, having achieved a reasonable theory as to its general mode of working, he would be able to make predictions about the behaviour of the apparatus, which would be usually (though not always) and approximately (though never perhaps precisely) borne out by subsequent observations.

4. THE PROBLEM OF THE BLACK BOX

When we are confronted with more complicated machines—for instance, when we want to compute the trajectory of a multi-stage rocket or the orbit of an artificial satellite—the same inductive

procedure will still be followed; and there is no reason why it should not be adopted with success to solve analogous problems in psychology. In all such cases the scientist's essential task is to unravel the basic principles which dictate the way the whole thing behaves without being able to disentangle all the component operations. A problem of this type is a commonplace to the modern engineer; he calls it "the problem of the black box".

In what exactly, then, does this inductive procedure consist? The general method is to make a series of observations on a systematic plan—always with some clear-cut issue in view, to record the results in numerical form, and then to subject the accumulated data to a theoretical analysis in the hope of eliciting a number of empirical generalisations. These generalisations in turn will be fitted into a more or less coherent theory; and the whole can then be checked by deducing fresh corollaries and subjecting them to an experimental test.

As a rule, the "box" is not completely closed or isolated. There will be, at certain accessible points, first an entry for the input of change, and secondly an exit for the output of change. The back of the clock has keyholes for the insertion of a key; its face has a couple of movable hands. Human beings have sense-organs which are sensitive to stimuli, and muscles with which to make the resulting responses. With both mechanism and organism the stimulation introduces energy; this may be amplified by the release of energy already stored within; internal mechanisms then control and guide the energy to the effector organs; and these operate levers whose movements comprise or produce what we call "behaviour" or "performance".

With researches on human beings, therefore, all the psychologist has to do is to apply suitable stimulation—e.g. tests for certain capacities, tasks or problems to be progressively solved, and incidental aids to the solution ("programmes", "reinforcements", and the like, in the language of the engineer). This forms the "input". A protocol is kept of the testee's performances or "output", if necessary with times or dates subjoined. The final step will be to compare what goes in with what goes out; and to reduce the results to what the mathematician would call "canonical form", i.e. to a set of equations describing the behaviour in terms of the simplest possible variables. The techniques for effecting this reduction must evidently be statistical.

In the field of biology the introduction of statistical methods of analysis has already brought rich rewards. Long before the experi-

mentalist had studied the mechanism of chromosomes, Mendel had adopted a statistical technique, which led immediately to "Mendel's laws". At the time the few biologists who read his paper dismissed it with comments like those of the contemporary critic of statistics in psychology: by substituting the statistical analysis for laboratory analysis, it was argued, the investigator would simply get "bogged down in abstruse mathematics". Nevertheless, forty years later, when Mendel's methods were given a fair trial, they not only revolutionised the prevailing conceptions of heredity, but furnished much practical guidance to breeders of animals and plants. For the psychologist and educationist the moral is obvious: there is no need to hold up research until the experimentalist has laid bare all the causal details; much can be done by applying statistical techniques to a well-planned collection of data.

5. NEW CONCEPTS

The application of these new procedures, however, will entail the adoption of unfamiliar concepts; and this is doubtless one reason why the results are so commonly ignored and the method so commonly rejected as fruitless or unintelligible. In the study of physical machines, the new terminology has a curiously psychological sound. We learn how certain processes supply the machine with "information", while others provide "control". In the machine the "control" and the "information" are of course unconscious; but such paradoxical concepts serve the same function as Freud's conception of "unconscious wishes". In both cases they describe the net effect of complex processes of whose detailed nature we are unaware.

For purposes of exposition it is convenient to have a set of linguistic equations for translating the technological terms into introspective terms, and vice versa. Regarded as a machine (in the sense in which I have defined the term) a human organism includes the analogues of both "springs" and "wheels", that is, it contains both sources of energy or "drive" (which will be tapped by input) and structural constraints which control and direct the energy, and thus mould the general character of the output. In the language of the engineer, we can call these the "dynamic" and the "cybernetic" aspects of the mechanism respectively. However, the human organism, unlike the clock, can be cross-questioned about its processes; and the answers may, I believe, be profitably used to check our inferences about internal structure. When our trainee is asked to describe the conscious experiences connected with the stimulation and release

of energy, he will say: "I felt interested or excited", "anxious to solve the problem", "annoyed when I failed", "pleased when at last I succeeded": these experiences the psychologist ordinarily describes as "affective or conative"—or, in one word, "orectic" (i.e. as the Greek dictionary explains, "striving, often with emotion, to reach a desirable end"). When referring to the experiences connected with guidance, they will say: "I perceived this or that", or "I reasoned thus or thus", or "Finding that wasn't quite right, I thought I'd try this"; and, on a later occasion, "I remembered so and so", and finally, "Then in a flash it all seemed to fit in". Experiences of this kind the psychologist describes as "intellectual" or "cognitive".

For the purposes of research, however, it will be best to begin by assuming that the most important difference between a conscious organism and an inanimate machine lies in the organism's exceptional complexity. The older types of behaviourism tend to overlook or at least to minimise this complexity; everything is reduced to terms of single stimuli (the impact of some kind of energy—light, sound, heat, pressure) and of single responses (treated as movements devoid of meaning). In place of these we must substitute *patterns* of stimuli and response, both communicating "information". The final state of equilibrium will itself be a *systematic pattern*; and the directive process which eventually achieves equilibrium will therefore consist, not in simple steering, but in the *organisation* of a system. There will be arrangements for registering and storing the results of some of the processes, so that the machine, like a phonograph which cuts its own record, will be able, as it were, to reproduce the same tune again and again.

Largely as a result of this extreme complexity, the "random element", i.e. the element of unpredictability, will be much larger than with man-made gadgets. Most industrial machines are as deterministic as the manufacturer can make them. The human machine, on the other hand, often proceeds by successive approximation—a process of trial and error with the errors gradually reduced by feedback. In such cases the mathematical functions or operators which represent the change from one state to the next will be, not one-valued, but many-valued. Each step taken by the learner may, or may not, be the right one. His progress will consequently be expressed, not by simple algebraic transformations, but by transitional probabilities. Nevertheless all these differences between man and machine are mainly differences of degree. And in point of fact many of the latest electronic devices operate by probabilistic methods, and

achieve, by a kind of trial and error, a progressive and self-adjusted organisation of the complex data fed into them.

The psychologist has already developed successful mathematical procedures to deal with complications of this kind. Like the quantum physicist he substitutes "matrices" for single "scalar" variables; and, under the somewhat inappropriate title of "factor analysis", he has developed numerous routine methods for simplifying observational material that has to be expressed in this rather elaborate form.

6. THE TIME VARIABLE

Now, if we are to take account of the effects of goal-seeking on the "conative" side, and of progressive organisation and cumulative storage on the "cognitive" side, we can no longer dispense with the dimension of time. Hitherto, factor theory, as expounded by the ordinary text-book, has been almost entirely two-dimensional: the two initial types of variable are "persons" and "tests" (or rather the attributes or traits assessed by "tests" or by similar metric procedures). This leads to generalisations that are purely "static". To describe the mental processes of a child who grows and learns and succeeds in his tasks, we must include a third basic variable, that of order in time. This will enable us to build up a new branch of psychology which I have termed "psychodynamics"; and, as in other forms of dynamics, we shall be concerned largely with rates of temporal change—rates of growth, rates of learning, and rates of fatigue or deterioration.

The equations that we adopt to specify these rates, however, will no longer be the differential equations of Newtonian dynamics; nor will the curves we use to fit the "trajectory" of the child's progress be those of the conic section, the parabola or the hyperbola, proposed by earlier investigators of learning and growth (8). Newton's laws of motion were deterministic laws. Yet even in physics these have proved inadequate. The laws of Brownian motion, for example, and of quantum theory are not deterministic but probabilistic. And of late statisticians have devoted special attention to the application of probabilistic principles to temporal processes, and to the properties of the mathematical models appropriate to behaviour that includes an appreciable element of chance. Such methods are commonly referred to as "stochastic" (9).

The most recent studies on the minute anatomy and physiology of the brain strongly support the use of such methods. They seem to lead to a complete rejection of those theories (popularised more

particularly by behaviourists of the Pawlowian school) which assume that the brain functions as a deterministic machine (somewhat like a telephone exchange with synaptic switches), and to suggest a probabilistic mode of operation carried out by aggregates of interacting units or "neurones" and producing something like a variegated electrical field. If so, a stochastic procedure would certainly be the most appropriate method for analysing the observable effects (10).

7. CURVES OF LEARNING AND GROWTH

Let us now turn from methods to results. A number of attempts have recently been made to apply the procedures I have described to the study of the processes of learning. Data can most readily be obtained by training one of the humbler mammals, such as a rat or a dog. Mrs Phillips (a former school teacher) and I have carried out a number of experiments on the modes of learning adopted by Siamese cats. Using a modified method of factor analysis, we reached a comparatively simple form of descriptive equation:

$$y = p_t(R) = b(1 - x^t),$$

where $y = p_t(R)$ denotes the probability of a correct response after t trials, and the other constants have to be determined from the data. With the help of Miss Foley and other research students we then extended the method to the learning processes of educationally subnormal children. This led us to a slightly more general type of equation. In its elementary form the rate of change may be most clearly expressed by writing

$$dy/dt = k(a+y)(b-y),$$

where a denotes the ability possessed before training starts, b the ability acquired when the training has achieved its utmost, and y the ability reached after the tth trial. Integrating such equations, we obtain more or less complex formulae of the type

$$Y/B = 1/(1 - Ce^{-Bkt}),$$

where $Y = a + y$ and $B = a + b$. The general curve of learning thus described is an S-shaped curve, with increasing gains during the earlier phases and diminishing gains during the later. In shape it resembles the ogive obtained on integrating the normal probability curve; but the fuller form includes a short power series, and thus enables us to allow for "plateaux" or stages where progress for a while seems stationary (11).

This result points to several instructive inferences: (i) the total complex process which the trainee is required to learn may be regarded as made up of numerous constituent processes (or, in neurological terms, as involving the formation of numerous neural connexions); (ii) the constituent items (or connections) vary widely in difficulty; (iii) for most learners the relative difficulty of these items is distributed roughly in accordance with the normal curve, the processes of medium difficulty being the commonest, and very easy constituents (learnt first) and very hard constituents (learnt last) being comparatively rare. Thus, in keeping with the probabilistic hypothesis, the course of learning must evidently depend, not so much on any logical order, but on the diminishing ease of the component processes. The practical corollaries are sufficiently obvious.

The same general procedure leads to the same complex type of curve to express the phenomena of growth or maturation (12); and thus incidentally demonstrates how inappropriate it is, at least for purposes of research, to measure potentiality for growth or learning by a quotient, which makes time or age the divisor, like the familiar I.Q.

8. The Plurality of Causes

More recent experiments enable us to identify, or at least interpret, the constants that appear in these equations. They are found to vary with the type of test (or test material) and with the individual child. On comparing results obtained with different tests and different persons, we find that the constants relating to the individual describe three distinguishable qualities (or groups of qualities) possessed by the trainees: first, what we have already referred to as dynamic or motivational factors; secondly, standing out in clear relief when the motivational factors are kept relatively uniform, two "directive" or cognitive factors. Of these one apparently expresses capacity for progressive organisation, and seems common to all cognitive processes, whatever their nature (13); the other is more or less specific to tasks of a repetitive or cumulative type, and appears to represent capacity for retention or storage. In short, the former may be equated with what in traditional parlance would be called "general intelligence"; and the latter with what is traditionally called "memory". Learning thus proves to be a much more complicated process than is generally supposed.

For the teacher the all-important question is—what causes these wide individual differences? Are they the effect of capacities built

in, as it were, at birth as unalterable properties of each child's "brain" or nervous system? Or, since the human organism, unlike the inanimate machine, is subject to growth as well as adaptation, can they be modified by the teacher himself? As usual with questions turning on simple antitheses, the answer, we may suspect, is that probably both types of cause are at work. And the real problem is rather to determine the specific effects and the relative importance of either type.

9. Methodology

Once again, before planning researches to solve such problems, the psychologist must pause to consider what is the most appropriate procedure. When confronted with a plurality of possible causes, all tending to influence the ultimate result, the maxim of the experimentalist is to "isolate each possible cause in turn, either by removing the rest or by keeping them constant; and to study the changes produced by allowing only one cause to vary". In the laboratory no doubt that is the proper procedure; in the classroom it is rarely practicable.

When we seek to investigate such problems as we find them in real life, we are faced once again with an inscrutable "black box": but now we are, as a rule, forbidden even to experiment with the input and the output. How then would the engineer or the physicist deal with similar situations? Consider Newton trying to ascertain the causes that determine the orbit of the moon, or the radar engineer trying to discover what conditions affect the trajectory of an artificial satellite already launched. The method they adopt consists essentially in applying the principle of the "parallelogram of forces"—analysing actual behaviour into two or more independent and hypothetical "components" which combine by vectorial addition to produce the observed "resultant". The astronomer, for example, postulates an occult gravitational "force", acting at a distance, which pulls the moving body towards the centre of the earth; at the same time he assumes a tangential tendency, due to inertia, operating at right angles: and finally he endeavours to measure *the relative strength of each*. The resultant path will be a curve which is one of the conic sections —a circle, an ellipse, a hyperbola, or a parabola, which can be compared with the actual observations. On the basis of the available data, he will be able to eliminate the more unsuitable alternatives, and calculate as exactly as possible the constants for the alternative that remains. To do this he employs "the method of least squares".

This is the recognised procedure for determining the line of closest fit as obtained by adjusting the constants for the two main components. If the fit still remains grossly inadequate, supplementary components will be invoked—the irregular shape of the earth, or (in the case of the satellite) atmospheric friction, collision with meteoric particles, errors in the automatic control which determined the direction of the final thrust in outer space, and so on. Throughout, it should be noted, the working concepts are not concrete and visible *structures* (14) but abstract and hypothetical *tendencies*; and these are defined in mathematical rather than in directly verifiable terms. The resulting computations may subsequently be used to predict the results of future observations; and the whole composite hypothesis can thus be subjected to an indirect check. But the real verification will lie in the fact that the conclusions to which we are led in this special field fit into the wider system of general psychological theory.

It was Karl Pearson (at that time Professor of Mechanics and Applied Mathematics at University College, London) who first suggested the application of this time-honoured "method of components" to the analysis of observations on human beings (15). The psychologist calls it the method of "factor analysis". Its special merit is that by "analysing the variance" it enables us to estimate the relative strength of each "factor".

10. The General Cognitive Factor

Our first task then is to examine the hypothesis that there are two main components (or groups of components), varying more or less in complete independence, namely what we have loosely termed motivational ("orectic" or dynamic) and directive ("cognitive" or intellectual) components respectively. Let us begin by collecting assessments for all the relevant characteristics in a representative sample of school children. We can do this by applying a variety of tests and by securing ratings from the teachers. (i) If the hypothesis put forward is correct, we should expect to find little or no relation between motivational characteristics on the one hand and cognitive or intellectual characteristics on the other: the indolent and phlegmatic children would include both bright and dull, and so would the industrious or energetic. The alternative hypotheses will be either (ii) that industry and intelligence tend always to go together, so that the lazy child is usually the stupid child and vice versa, or else (iii) that the data are so erratic that no such classification can be plausibly sustained.

To decide the issue we must evidently correlate each set of assessments with every other. What do we find? All the cognitive qualities show positive intercorrelations, varying in size; and all the orectic (affective and conative) qualities show positive inter-correlations, though not perhaps so large; but the cross-correlations between the one group and the other are almost negligible. Certainly, they seem more often positive than negative; but, unless the group tested is very large or highly selected, none of the coefficients proves to be statistically significant. So far, therefore, the outcome justifies us in accepting the first of the three hypotheses (16).

The factor of motivation is too often overlooked in the text-books. It includes such influences as interests, "reinforcement" through pleasurable rewards (the satisfaction of success) or the reverse, "ego-involvement", and the like. Most of these incentives are acquired rather than innate. In what follows I shall ignore their influence, or rather assume that the investigator can either keep them or eliminate them by partial correlation; and turn next to the verification of what I have called the cognitive components.

Older psychologists classified cognitive processes in terms of about a dozen different cognitive "faculties"—the five senses, perception, memory, imagination, reasoning, and the like. Spencer, Galton, and Binet, however, maintained that in addition to such "special abilities" there was a kind of super-faculty termed "general ability" or "intelligence", and that differences in this "general ability" were determined largely by the individual's genetic constitution. This view, widely accepted at the beginning of the century, has since been vigorously challenged. It involves two propositions: first, that there is a *general* intellectual factor, and secondly that this factor is mainly, though not perhaps wholly, *innate*. Our next task therefore is to consider what evidence there may be in support of each statement.

(A) *Intelligence as a General Factor*. The evidence for the first proposition comes from at least five different sources. The critic commonly seizes on one particular argument, and seeks to show that this is by no means conclusive. With that we may readily agree. What he overlooks is the high *cumulative* probability resulting from the convergence of half-a-dozen different lines of reasoning.

(i) *Observations* on the behaviour of other persons have, from the days of Plato and Aristotle onwards, led psychologists, not only to distinguish directive (or cognitive) from dynamic (or emotional) activities, but also to regard the former as manifestations of a peculiar

kind of mental endowment, which Greek writers called "Nous" or "Dia-noesis"—a word translated quite literally by Cicero as "Inter-legentia". (ii) Later psychologists relied more on self-observation or *introspection*. The introspective evidence is most clearly summarised by Ward in his well-known criticisms of the faculty doctrine. There is, he contends, only one mode of cognitive awareness, which he calls "attention". This may be directed towards different kinds of cognitive content (sensations, images, thoughts, etc.); but it is "an error of mal-observation to postulate different *modes* of awareness —sensing, imagining, thinking, and the like—all concerned with one and the same eternal object" (17).

(iii) The *biological* evidence is based mainly on the observations of other creatures than ourselves. According to Spencer and those who followed him these comparative studies reveal one fundamental process of adjustment or adaptation, characterising even the lowliest conscious organisms; this, it is said, differentiates, in the course of animal evolution and again during the growth of the individual, into a hierarchy of more specialised processes. (iv) The *neurological* evidence in my view is still more convincing. Just as other tissues (skin, hair, bone, etc.) are of much the same general character throughout the body of the same individual, with minor local differences, so the structural delicacy of the nervous tissue or "brain" appears to be much the same throughout the same individual brain, with minor tendencies towards local differentiation as the brain develops. This view, derived from microscopic studies of the cortex, was accepted by such eminent neurologists as Sir Charles Sherrington, and has been confirmed by more recent work (18). (v) By itself none of the foregoing arguments can be regarded as final. For a clear-cut decision we must turn once again to the *statistical* evidence. Four alternative hypotheses are conceivable: (a) that the mind, unlike the body, has no discernible structure, and therefore cannot be sub-divided into distinct faculties or factors—a view formerly defended by Thomson in this country and by Thorndike in America; (b) that there are a number of group factors indicative of "primary abilities", not unlike those of the traditional "faculties", but no general factor of intelligence—the view at one time adopted by Thurstone and his American followers; (c) that there is only one fundamental factor—a general cognitive ability variously defined, the view advocated chiefly by British writers like Ward and later C. E. Spearman: and finally (d) that there is both a general factor and a number of special abilities or group factors—the composite view to which, as we have seen,

both the biological and the neurological evidence appears to point.

As a result of the long-drawn controversy between these rival theorists a vast amount of statistical data has now been accumulated. Briefly, it may be said, the first two hypotheses are negatived by the fact that in almost every research *all* the different tests of cognitive ability show positive correlations, statistically significant but varying in size. This implies a general factor. When the effects of the general factor are eliminated, then certain groups of tests still appear correlated together in classifiable clusters. This eliminates the third hypothesis; and confirms the last. In their later writings, Thorndike, Thomson, and Thurstone eventually accepted (in slightly different forms) the hypothesis of a general factor; and Spearman became more and more inclined to recognise group factors. As a result, criticism to-day is directed chiefly against the second of the two main propositions mentioned above.

(B) *Intelligence as an Innate Factor*. Here again the evidence consists, not in a single argument alone, but in a number of different arguments, all mutually supporting each other.

(i) To begin with, intelligence is obviously a characteristic of *biological importance*. All other biological characteristics exhibit individual differences due to differences in genetic constitution. It is therefore inconceivable that mental ability should be a unique exception. (ii) Secondly, the results of an *analysis of the variance and covariance* exhibited by measurements of intelligence are precisely what we should anticipate on the assumption that intelligence is determined genetically in conformity with Mendelian principles. Over this, however, there is still a good deal of confusion. Most of those who criticise the hypothesis of mental inheritance adopt entirely out-of-date conceptions of the methods of hereditary transmission. Their usual definition is that "heredity means the tendency of like to beget like" (*Oxford English Dictionary*). Hence the evidence on which they suppose the genetic psychologist to rely is the fact that children of intelligent parents resemble their parents by being equally or nearly as intelligent, or, when their parents differ, present a blend between the two. Such an inference would be open to the obvious objection that the intelligent parent might have passed on his intellectual advantages indirectly by means of the superior environmental opportunities which he can provide. But as the modern geneticist insists, what really demands explanation is not the fact that children tend to resemble their parents, but rather the fact that even within the same family each child differs from his parents and from his sibs.

This, as Darwin admitted, could not be explained by blended inheritance (which he accepted): he therefore, fell back on the far-fetched notion of "spontaneous" variation. But such differences are precisely what we should expect on the *Mendelian* theory of particulate factors ("genes") which recombine by chance. Karl Pearson, it is true, contended that his data were incompatible with particulate inheritance—a point frequently cited by more recent critics. They overlook the fact that Pearson's calculations (carried out fifty years ago) assumed perfect dominance and perfectly random mating—two assumptions which have since proved quite untenable. And in point of fact the adoption of more up-to-date methods and conceptions indicates that the transmission of intelligence is almost exactly parallel to the transmission of physical characteristics, like arm-length, leg-length, and stature. (iii) The *frequency distribution* displayed by measurements of intelligence is approximately normal, with a slight asymmetry due to a lengthened tail of low abilities. This again is what we should anticipate if, like other graded characteristics (stature, for example), differences in intelligence were produced partly by unifactorial but mainly by multifactorial inheritance. (iv) If we examine cases where *environment is constant* (or nearly so, as with children brought up from infancy in residential institutions), we still discover wide individual differences; and these correspond with differences in the parents. (v) If, on the other hand, we examine cases where *heredity is constant* (as with "identical twins" brought up in different homes from an early age), we find that wide differences in environment do not produce corresponding differences in results obtained from efficient tests of intelligence, though they do produce them in results obtained with tests of acquired attainments (19). (vi) *High intelligence in poor environmental conditions*, though rare, is by no means infrequent in large-scale surveys: in London, many children who are born in the poorest circumstances with ill-educated parents of low intelligence, and who have often suffered from the gravest handicaps—neglect, ill feeding, personal ill-health—may nevertheless display such high ability that they win scholarships and rise to eminence in after life. Such anomalies cannot possibly be accounted for by environmental theories, but are to be expected on the Mendelian theory. Of course, no genetic psychologist denies or ever has denied that the crude results obtained from ordinary intelligence tests (particularly verbal tests applied by a group procedure) may be appreciably affected by environmental differences. But methods are available for eliminating such effects from the

statistical analysis; and at worst they do not account for more than 25% of the total variance (20).

Definition of Intelligence. We thus reach the conception of an innate, general, cognitive factor. It is convenient to have a single word to designate it. As we have seen, Spencer, Binet, and Galton revived the old Latin name "intelligence" as the simplest and most suitable. To explain how it actually operates, different psychologists have offered different views. Perhaps the commonest is that put forward by Spencer and adopted by Stern, namely, that intelligence is "the capacity of the individual organism to adapt itself to new and increasingly complex conditions". Pintner, after reviewing the alternatives, sums up Spencer's rather erudite account by saying that "for the teacher the most useful way of thinking about intelligence is as *ability to learn*" (20). However, the word "learning" is highly ambiguous, and, as ordinarily used, covers a diversity of processes that certainly do not depend on intelligence alone. There are brilliant people whose capacity to learn is surprisingly weak; and dull and defective pupils whose memories are remarkably tenacious.

11. Supplementary Factors

Our next step, therefore, will be to inquire whether there may not be some factor, or group of factors, which distinguishes learning from other forms of cognitive process. The obvious procedure will be to apply a wide variety of tests (including tests of learning), and then to eliminate from their intercorrelations the effect of the general factor. When this is done, clusters of residuals remain, though they are far smaller than might be expected. Broadly speaking they suggest a cross-classification of mental processes (a) according to their formal character and (b) according to the kind of subject matter employed.

Factors of the former type seem to depend largely on what the neurologist would call the "level" of the nervous connexions involved—e.g. whether they produce simple sensori-motor reactions, or whether they involve the formation of new associations, and so on. Factors of the second type depend chiefly on differences in mental content—e.g. whether the sense-perceptions are those of sight, hearing, or movement, whether imagery is used, and if so whether it is visual, auditory, or kinaesthetic, whether the subject matter is verbal, numerical, spatial, symbolic, or whether it includes explicitly cognised relations. Each of these broader factors may be divided into narrower subgroups, so that the whole classification (as we might expect from the manner in which the central nervous system is

organised) is more or less hierarchical. Here we are concerned chiefly with those particular factors which enter into processes commonly described as "learning".

(i) And first it seems plain that we must discriminate between "mechanical learning" and "meaningful learning". So far as our own investigations go, we find ample evidence for factors underlying the former: these appear to indicate different forms of what I have described as "capacity for retention" or "storage". No evidence is discoverable for any separate factors peculiar to the latter: it is apparently just one of the more conspicuous manifestations of the organising work carried out by the "general factor" of intelligence (21).

(ii) Secondly, there are factors distinguishing short-distance from long-distance memory. Early experiments on the rate of forgetting revealed a concave curve: the rate of forgetting is always far more rapid during the first few minutes, and becomes slower and slower as time goes on. This suggests that retention results from two kinds of process: (a) "perseveration", the persistence of sensations or ideas (or of the underlying activities) after the stimulus has ceased, and (b) more permanent "traces", which are usually conceived as new conduction-paths formed in the brain by lowering resistance at the cell-junctions (22).

(iii) Thirdly, in addition to the relatively general factor for retentiveness (in the sense of long-distance, mechanical memory (23)), there are numerous subfactors distinguishing retentiveness for different types of mental content. Of these the most obvious distinguish the learning of movements with the accompanying kinaesthetic contents ("motor learning" or "habit formation") from the learning of material with a more explicit type of sensory content. For the latter, several distinct factors are discernible; some children retain visual material best, others verbal, others kinaesthetic, and so on.

So far as we can trust the somewhat meagre evidence, differences in nearly all these various factors seem to be inheritable, and to vary with the individual's genetic constitution. When an intelligent child of six or seven continually fails in learning to read, or appears unable to learn simple mechanical arithmetic, the most frequent cause is weakness in long-distance mechanical memory for verbal or numerical material. Contrary to the view so commonly prevailing among teachers and the general public, little can be done by practice or by mere mental gymnastics to improve retentiveness as such; but pupils can certainly be taught to make better use of whatever memory they may possess. Nevertheless, if we may judge by the relative amounts

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contributed to the total variance by the different factors, retentiveness in itself is a far less important ingredient in the total process of learning than the general factor of intelligence.

12. Conclusion

These, then, so far as analysis will take us, seem to be the more important factors entering into the processes of learning. In many ways, it will be seen, our conclusions depart appreciably from those put forward by writers of the behaviouristic school, who tend to apply to the learning of children, with little or no further verification, the inferences drawn from experiments on the learning of animals (24). Owing to the extreme complexity of the problem, experimental techniques are more likely to disclose those factors which are most easily discovered, than those which are of greatest importance. Statistical methods indicate not only which factors are most important, but also what is their *relative importance*. We thus seem now to possess a fairly sound theoretical basis. The concrete applications, however, still need to be worked out. We know far too little about the way these "factors" operate in the actual work of the classroom; and this is a question which only the teacher himself can attack. Let me conclude therefore by appealing once again for renewed co-operation between teachers and psychologists in the task of practical research.

NOTES AND REFERENCES

1. The following paper contains the substance of two lectures delivered during a course on the Psychology of Learning, organised by the University of Birmingham Institute of Education and held at the City of Worcester Training College in the summer of 1957. At the request of several members of the audience, I have amplified my account of newer methods of investigation—a topic too technical for oral exposition—and venture to hope that teachers may possibly be persuaded to try them in the studies which from time to time so many undertake.
2. Watson, J. B., *Behaviourism*, London, Kegan Paul, 1931, p. 112 (italicised in the original).
3. Cf. Simon, B. (ed.), *Psychology in the Soviet Union*, London, Routledge, 1957.
4. The word is here used in a generalised sense. By a machine I understand a combination of structures whose possible changes are subject to certain constraints, so that the energy imparted or released may be transformed or transmitted in such a manner as to do assignable types of work. The term is thus not to be taken as referring solely to mechanical appliances (as distinct, say, from chemical, electrical, or electronic).

5. It is perhaps worth pointing out that "telos" means "end" in the sense of the consummation of a process, not its mere cessation. The comparison of conative ("goal-seeking") processes with the tendency towards equilibrium is by no means so new as is generally supposed: cf. Stout, G. F., *Analytic Psychology*, London, Sonnenschein, 1896, I, pp. 151f.

6. Cf. Ashby, W. R., *Design for a Brain*, London, Chapman and Hall, 1954: "The homeostat does no more than run to a state of equilibrium; yet this simple phrase covers many intricate modes of behaving, many of high interest in physiology and psychology."

7. The initials stand for "Conditioned Reflex Analogue": cf. Walters, W. Grey, *The Living Brain*, London, Duckworth, 1953, pp. 121f, and Pask, G., *Bull. Brit. Psych. Soc.*, XXIX, 1956, p. 25.

8. For criticisms of the older methods of obtaining curves of learning (without introducing probabilistic variables) see Audley, R. J., and Jonckheere, A. R., "Stochastic Processes and Learning Behaviour", *Brit. J. Stat. Psychol.*, IX, 1956, esp. pp. 88 and 91.

9. The term is not so novel as might be supposed. In Greek the word was used of the sciences of "aiming" and of "conjecture". Dean Swift described himself as a "Master of the Stochastick Art" (*Precedence between Physicians and Civilians*, 1720); and we are told that Sir Thomas Browne, a practising physician, "though no prophet, excelled in the faculty which comes nearest to it, namely the Stochastick, wherein he was seldom mistaken as to future events, as well publick as private" (Whitefoot *ap.* Browne, *Works*, 1712, I, xlvii). In its contemporary sense "the theory of stochastic processes may be regarded as the 'dynamic' part of statistical theory, with a multiplicity of applications" (Bartlett, M. S., *An Introduction to Stochastic Processes*, C.U.P., 1955).

10. Cf. Cragg, B. G., and Temperley, H. N. V., "The Organisation of Neurones: A Co-operative Analogy", *EEG Clin. Neurophysiol.*, VI, 1954, pp. 85-92; and Sholl, D. A., *The Organisation of the Cerebral Cortex*, London, Methuen, 1956, p. 112: "whether the cortex is studied by anatomist, physiologist, or psychologist the model employed should be based on the concept of probability and discussed in statistical language."

11. Cf. Burt, C., and Foley, E., "The Statistical Analysis of the Learning Process", *Brit. J. Statist. Psychol.*, IX, 1956, pp. 49-62; cf. also Bush, R. R., and Mosteller, F., *Stochastic Models for Learning*, London, Chapman and Hall, 1955, which relies on a contiguity theory of learning, and the criticisms of this method by Audley and Jonckheere, *loc. cit. sup.*

12. See Burt, C., *The Backward Child*, U.L.P., 1937, Appendix II, eqn. (27), p. 650 and Figure 13.

13. The introspective psychologists, who start from the analysis of intellectual processes, traditionally speak of it as "apperception"; the physiological psychologists, who start from the analysis of muscular responses, describe it as "co-ordination". But both these terms describe manifestations of what (to use Sherrington's convenient

phrase) is essentially the general "integrative action of the nervous system".

14. I find that a high proportion of the convinced materialists or behaviourists whom I meet are vivid visualisers. It is therefore tempting to suspect that the widespread notion (expressed by Lord Kelvin in a moment of indiscretion) that "scientific method requires as an axiom that we should always be able to picture whatever theory is proposed in the form of a structural model" owes its apparent self-evidence to the fact that its upholders cannot rid themselves of their inveterate tendency to visualise. However, it is only fair to own that the non-visualiser equally runs the risk of reifying formulae that are merely verbal or symbolic. (Cf. Pierre Duhem's suggestive distinction between the "English mind" and the "French mind" in *La Théorie Physique : son Objet et sa Structure*, 1914, pp. 63f.)

15. Pearson, K., "Lines and Planes of Closest Fit", *Phil. Mag.*, II, 1901, pp. 559f. The first attempts to apply Pearson's method to human data were Macdonell's studies of the classification of criminals by bodily measurements.

16. Cf. Piaget, J., *The Nature of Intelligence*, London, Routledge, 1950, pp. 4-5: "Every action involves an energetic or affective aspect and a structural or cognitive aspect. . . . Feeling supplies the energy by attributing values to ends or goals; intelligence provides the ends and is thus adaptive."

17. Ward, J., *Principles of Psychology*, C.U.P., 1918, pp. 61f.

18. Cf. Sholl, D. A., op. cit., esp. p. 111.

19. For detailed figures, see Burt, C., "Evidence for the Concept of Intelligence", *Brit. J. Educ. Psychol.*, XXV, 1955, pp. 158-77.

20. For details see Burt, C., and Howard, M., "The Multifactorial Theory of Inheritance and its Application to Intelligence", *Brit. J. Statist. Psychol.*, IX, 1956, pp. 95-131.

21. Even in the very first attempt to apply Pearson's method of components to psychological data, clear evidence emerged for a "group factor" of retentiveness in addition to the "highest common factor" of intelligence (Burt, C., "Experimental Tests of General Intelligence", *Brit. J. Psychol.*, III, 1909, pp. 94-177). And in the later literature a factor for "memory" (as it is usually called) is one of those most frequently reported.

As to the distinction between the two types of memory mentioned above, the earliest experimental study was that of McDougall and May Smith ("Experiments on Learning and Retention", ibid, X, 1920). McDougall, following Bergson (*Matière et Mémoire*, chap. II) held that the former was "of the body" and the latter "of the mind" within the body": mechanical memory he identified with "habit", such as is exemplified in motor learning. However, as will be seen in a moment, statistical evidence seems to point to a separate factor for motor learning. His work on the two main types led him to pronounce the severest strictures on "our barbarian education, which, tacitly assuming that the pupil's mind is nothing but a mechanism, places its reliance on memory of a purely mechanical kind: intelligent

learning is the learning that must be introduced into the schools of the future".

22. The construction of working models which are capable of learning shows plainly that it is by no means necessary to suppose that memories must be stored in the form of altered structures and located in definite parts of the apparatus, analogous to the behaviourist's "strengthening of S-R bonds in the cortex": that is rather like assuming that a concert is transmitted over the telephone by an enormous number of separate wires, one (say) for each distinct pitch. The mode of storage in the brain, like that employed in many electronic computing machines, might be functional rather than structural. The effects of previous experience could, for example, be preserved in the form of electrical impulses oscillating or circulating in circuits until required, or of patterns formed by potential gradients in the electrical field.

23. A fuller account of the various factors involved in learning, with a detailed list of references, will be found in Burt, C., "The Structure of the Mind: A Review of Factorial Results", *Brit. J. Educ. Psychol.*, XIX, 1949, ii and iii, esp. pp. 177f.

24. For an instructive discussion of some of the differences between animal learning and human learning, see Peel, E. A., *The Psychological Basis of Education*, Edinburgh, Oliver and Boyd, 1956, esp. pp. 86f.

SOCIAL LEARNING: SOME ASPECTS OF CHARACTER FORMATION (1)

by BEN MORRIS

Professor of Education and Director of the Institute of Education, University of Bristol

1. WHAT DOES THE TERM "SOCIAL LEARNING" MEAN?

WHEN the social psychologist looks at the process of learning, he sees it as the whole business of adjusting to human adult life. Learning accounts for attitudes, for morals, for all behaviour ranging from bodily organic activities such as eating to the intimate fabric of our personality. It extends down to basic biological activities: when, how and what we eat are all learned; we even get hungry by the clock, although eating is an inborn appetitive tendency. By means of learning we internalise or interiorise our culture; culture exists inside us and all our behaviour is both biologically and socially conditioned.

There is no theory which will adequately cover the vast range of social behaviour and learning. The social psychologist in search of a learning theory must therefore be eclectic. The best validated theory concerns only relatively simple learning processes like acquiring motor skills and memorising facts. Thus the theory of need satisfaction, although fundamental, can usually be invoked only in a rather indirect way. Similarly, concepts such as reinforcement or Thorndike's law of effect have only limited applicability. A theory based upon stimulus-response elements is not adequate to deal with the complexities of the higher forms of human behaviour for several reasons. In the first place, most human learning is not a direct reaction to the stimulus of an impersonal environment but a reaction to other people, either in actuality or in fantasy; other people and their behaviour are the main stimuli, whether they are present in fact or in imagination. Further, a stimulus-response theory does not take adequate account of the active self or ego involved in human learning, and does not give a satisfactory account of moral behaviour.

2. REQUIREMENTS OF AN ADEQUATE THEORY OF SOCIAL LEARNING

James Gibson makes a number of suggestions concerning the

requirements of any future theory of learning if it is to be considered adequate (2). It must be based on the fact that learning always has a biological basis; the self has a natural as well as a social history. The theory will have to include need satisfaction as one basic principle, and will have to make use of gestalt concepts and probably cybernetic models if we are eventually to understand the elaborate forms of human interaction. It must emphatically reject any idea of an "original human nature" which can be conceived in vacuo: biological human nature and cultural human nature go together and do not involve any fundamental opposition. For the isolated stimulus it will be necessary to substitute *objects* and *events*; for responses it will be necessary to substitute *acts*. The social psychologist is concerned with concepts at a molar level, with recognisable units of everyday behaviour, which must be seen as whole and in sequence. A future theory of social learning may use behaviourist theory but cannot subscribe to it as more than a partial approach. It must allow for theories which rely on personal experience. It is impossible to explain in purely behaviourist terms how we come to *know and understand other people*. We interpret what we see in them in terms of what we experience in ourselves; and, by definition, our personal experience as participants in events lies outside the behaviourist programme. Finally, a theory of social learning must allow for the concept of the ego as a self-acting and controlling agency. Thus it must use *all* theories of learning where they are applicable.

Gibson, although not a psycho-analyst, says: "Freud saw the essential problem—'What ways and means does a generation use to transfer its psychic states to the next generation?' Further, 'no psychologist has understood the role of the parents in forming the habits of the child as clearly as he (Freud).'" It is worth noting here that a formidable body of support for psycho-analytic views is being built up from unexpected quarters, particularly in psychosomatic medicine, in cybernetic theory and in comparative animal behaviour (ethnology), where it has brought new life to the study of instincts (3).

3. Social Learning and Character Formation

When considering social learning in its relation to character formation, our concern is especially with the part played by adult models in the life of the child. We are particularly interested in the models provided for him in the family circle during his early years, and in the part played by parents, teachers and others during his childhood and adolescence.

Adult Models

The means by which one generation transfers its "psychic states" to another are mainly to be looked for in unconscious processes in early childhood. These are analogous to what is commonly called imitation in the sphere of external action and conscious thought; but to say this cloaks the essential what, when, why and how of the unconscious dynamics of the modelling process. We are faced with two basic problems: we need to explain, first, the growth in the child of an ego which is unique, although it in many ways resembles the ego of the parents; and second, the existence of a moral self which can become independent of social pressure.

(a) Development of the Ego

The early attachment of a child to his mother or mother substitute seems to be a basic facilitating factor for later moral development. Children deprived of parental affection and security in early life have great difficulty in making moral adjustments later on. It is on this primal experience of love and goodness, from a person who can tolerate the child's hate and rage arising from the necessary frustrations of infancy, that there develops a basic trust in the world. If the child does not have this experience, the later structure is likely to be very shaky indeed: instead of trust, there develops a basic mistrust of the world. In the boy, this attachment to the mother or mother substitute is later overlaid by attachment to the father. Freud says this is both because the boy becomes aware of his own sex and wishes to be like his own sex, and because he recognises in his father a rival for his mother's affection and therefore copies him. "Copying" in this sense of "identification with" is the best way of dealing with a rival whom he also loves. Thus he learns his sex role. A somewhat similar process holds for the girl. These are all unconscious processes —processes in the organism, carried out at a level below consciousness. In imagination the child takes the parents as models inside himself: he "introjects" selective images of what he thinks his parents are like. This is an example of the interiorisation of culture, the parents here exemplifying culture. The child uses these images of the parents to build up psychically a recognisable self, his own ego.

(b) Development of the Moral Self

In many cultures behaviour becomes independent of the original sanctioning sources, because of this process of introjection. The

parental images which are internalised embody moral attitudes and we have the development of what is ordinarily called a conscience.

We may recapitulate briefly the stages in this process of development. Morality begins through the child's reactions to sanctions, that is, to punishments and rewards administered by his parents; and we may use the behaviourist model to explain how this occurs. The child thus obeys while his parents are about. Gradually these sanctions become part of the growing child himself, and he becomes to some extent autonomous; the sanctions represented by the parents have then been internalised. The organic basis for this internalisation is not known. If we are to describe it in physiological terms we probably need a model of the cybernetic type. It must, however, be noted that the child's images of the parents are not exact copies: they are distortions of the real parents, as is clearly seen in mental illness, where these early parental images may gain control of the whole personality.

The next stage occurs when the child identifies himself with his parents, predominantly with the parent of the same sex. Morality at this stage is based on sympathy; the child treats his parents as he would himself, because in a sense he is his parents and they are him. This is the morality of "do as you would be done by".

Beyond this is the final stage, not of sympathy and identification but of recognition of others as separate beings, of the recognition of personhood and of mutuality. This is the final stage of becoming a reasonably mature being, the stage of treating others as ends in themselves. It is only in this stage that Kant's categorical imperative has any meaning.

The development of the ego and the moral self does not, of course, take place in clear-cut stages. In its later stages it is reflected in the process of building up a more or less conscious ego-ideal. This may be demonstrated in children's ideas of the person they would most like to be, as revealed, for instance, by essays. In the earliest stages the ideal is the parent or parent substitute; this is followed by the glamorous and often fictitious adult; then by the attractive and real adult; and finally a composite concept of an ideal person is built up. This whole account is, of course, extremely simplified, and concentrates exclusively on positive aspects. Reference to anxiety, aggression, guilt and hate has largely been omitted, and their role in social learning and the development of adult morality is immense.

One practical point concerns the potential importance of literature in building up ego-ideals and widening sympathies through processes

of identification. The general ideals of a liberal education should also be considered in the light of these comments.

What about experiences beyond the family circle? Experiences in groups other than the family group play an important part in the development of the moral self. The crucial part in the development of the moral self lies in the identification, by the individual, of his purposes with those of the group to which he belongs; it is by this means that he adds to his social learning and acquires more completely the culture of his group.

This is important in planning educational experiences. We must give children the experience of being with people who are cooperative, and the opportunity to be co-operative themselves; and in this context reference should be made to studies of learning in different types of group atmosphere (4). This leads on to thinking and talking about moral issues, at which stage, but not before, moral concepts and their verbal expression become important. At earlier stages the learning of moral precepts is apt to be merely unintelligent reciting, because it is usually without the necessary basis of experience. The educational hope is that ultimately children will develop a conscious and, therefore, reflective and critical acceptance of a particular code of conduct.

CONCLUSION

This article does not pretend to give more than the briefest outline of the development of the moral self, and must conclude with an equally brief reference to the role of the teacher in this process. Inevitably the teacher has the role of a model, a primary vehicle for the transmission of culture. He must provide an environment which gives security, and which allows children to have experience of moral issues as well as to read and to count. And finally, with older and brighter children, the teacher has the duty of discussing "what it means to be a moral person": in other words, he must act as a clarifier of moral notions.

REFERENCES

1. The following paper contains the substance of a lecture delivered during a course on the Psychology of Learning, organised by the University of Birmingham Institute of Education and held at the City of Worcester Training College in the summer of 1957.
2. Gibson, J. J., "Implications of Learning Theory for Social Psychology", in Miller, J. G., *Experiments in Social Process: a Symposium on Social Psychology*, New York, McGraw-Hill, 1950, ch. 8.

3. Fletcher, R., *Instinct in Man*, London, Allen and Unwin, 1957.
4. Lippitt, R. and White, R. K., "The 'Social Climate' of Children's Groups", in Barker, R. G., Kounin, J. S. and Wright, H. F., *Child Behaviour and Development*, New York, McGraw-Hill, 1943.

LEARNING AND EMOTION (1)

by M. L. KELLMER PRINGLE

Lecturer in Education and Deputy Head of the Remedial Education Centre, University of Birmingham

1. Introduction

THE study of emotion is, at present, not very respectable academically. Lloyd Morgan's canon stipulated that the behaviour of animals should not be explained in terms of human attributes if it could be explained on a lower level (2). Now, more than fifty years later, this has been subtly inverted: many psychologists are reluctant to attribute to humans any characteristics which cannot be demonstrated in lower animals. Similarly, the application of Lloyd Morgan's "canon of parsimony" to human actions means that one must never explain them by "higher motives" if they can also be explained by reference to "lower motives". Professor Mace has suggested that this reduces the interpretation of behaviour to the level of malicious gossip and that this may even be unfair to rats!

On the other hand, some psychologists, such as Ashley Montagu (3), consider that learning theories have at present little to offer to students of personality and human development.

I shall take up a middle position: learning theories do have an important contribution to make but there is a great need for more systematic research in the field of human motivation, personality adjustment and mental health.

2. The Meaning of Emotion

Emotion is a label for a vast range of psychosomatic states which occur when something—either in the external environment or within the organism—thwarts or enhances the process of living. On the subjective side emotion involves feeling which may be quite clearly defined (for instance when one experiences a surge of anger) or vague and difficult to describe (as when one feels anxious). Usually emotion involves perception or awareness of an event or circumstance, though strong feelings may occur without such awareness ("unconscious" motives). Emotion also involves an impulse to action, whether this

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be an actual physical act or a verbal reply. The objective features of emotional behaviour include a wide range of visceral activities, including glandular, digestive and muscular changes. Thus the term emotion covers both positive and negative conditions; at the one extreme it may be shown by highly explosive and disorganised behaviour, at the other by well organised and constructive behaviour. Though this point is simple it needs emphasising since "often in psychological writings emotion is treated primarily as a form of disorder or distress. . . . But emotion is involved in the whole business of living" (4).

3. THEORIES OF MOTIVATION

To understand emotional development a broadly conceived theory of motivation is needed. It must take into account the elementary physical needs as well as "emotional (non-vital) basic needs" (3). These Montagu defines as any biological urge which is not necessary for the physical survival of the organism "but which must be satisfied if the organism is to develop and maintain adequate mental health". As a definition of mental health he suggests "the ability to love, i.e. to form relationships, and the ability to work". Linton (5) considers the following to be man's most important psychic needs: (a) the need for emotional response from other individuals, (b) the need for security and (c) the need for new experiences. Snygg and Combs (6) maintain that the "basic human need" is the "preservation and enhancement of the phenomenal self"—the self of which a person is aware. Maslow (7) developed a system of "basic needs" which he arranged in a hierarchy, from the most basic and biologic to the most advanced and socialised, according to the principle of relative potency. For example, the need for food is stronger than the need for safety, because the former dominates the organism when both needs are frustrated. Similarly the need for safety is stronger than the need for love and the latter is stronger than the need for prestige. According to Maslow, when the most potent need is satisfied, the next higher need emerges, so that man is "a perpetually wanting animal".

Lindgren (8) has modified Maslow's original list to establish a more comprehensive system of basic needs. A five-fold classification is suggested: bodily processes (i.e. the need for food, water, oxygen, etc.) and safety (i.e. to avoid physical danger) are placed at the first and second level of importance; the need for love is given the third level of importance, second only to the need to maintain and protect the physical self. These three needs appear in infancy and hence are

basic to the other needs. Unless they are met satisfactorily, the child cannot give the necessary attention and energy to meeting the other needs. For example, the child who is hungry or fears that his mother may have deserted the family by the time he returns home, is too preoccupied to do well in his school work. Needs at the fourth and fifth levels are concerned with the individual's relations with others. "Status and acceptance by the group", which Lindgren places at the fourth level, involve self-respect and self-esteem, as reflected by the respect of others. Needs at the fifth level, which he terms "general adequacy, creativity and self-expression", are concerned with the development and maintenance of a "life role that is satisfying and worth while", based on a sense of personal adequacy and self-realisation. Needs at the lower levels involve behaviour which is relatively simple and direct; needs at the fourth and fifth levels are much more likely to involve behaviour that is symbolic or abstract, making greater demands on the intelligence and maturity of the individual. These basic needs are interrelated and interdependent; frustrating or blocking the needs at one level affects the ability to meet needs at other levels (for example inability to establish satisfactory relations with other people may affect the ability to sleep or to digest food properly).

Tilton (9) holds that "the best hypothesis upon which to proceed is that there is only one basic motivation and that it is not channelled along specific lines as are adult motivation patterns". According to this viewpoint, there is originally only an excitement to activity as a result of physiological need. Gradually under the influences of our culture and man's capacity for learning, this physiological basis is differentiated into movitational patterns. In spite of such commonness of pattern as comes from growing up in the same culture, there is to be expected a great deal of individual uniqueness, both because of the uniqueness of the individual's environment and because of his uniqueness as a physiological organism.

In the psycho-analytic field, most writers, from Freud and Horney to Fromm and Alexander, have for long stressed a view of human motivation where love and the development of close, secure relationships with the parents play a central role. It seems significant that in recent years writers, holding different theoretical viewpoints, have come to place the need for affection and belonging either equal to, or next in importance to, the basic physical needs. Some argue that this need is primary and essential for survival; others hold that it springs from the initial helplessness and dependence of the human

infant; yet others believe that it is conditioned by the treatment of loving parents. Whatever the mechanism, it seems evident that babies need affection and, as they mature, also show a need to give love. Again, whether and to what extent the child's affectionate behaviour represents a primary drive or an acquired motive would be difficult to determine. The work of Dennis, for example, suggests that it arises spontaneously and with a minimum of social stimulation (10).

4. THE RELATIONSHIP BETWEEN AFFECTION AND LEARNING

A basic and all-pervasive feature of parental love is that the child is valued for his own sake. In their relationship with him, the loving father and mother communicate affection through all their ways of dealing with him. The greatest impact of such love is on the development of the self, which has been defined as "reflected appraisals" (11). Approval and acceptance by others are essential for the development of self-approval and self-acceptance. Whether a child develops a constructive or destructive attitude to himself and to other people depends in the first place on the parents' attitude to him. In the dependency relationship of the child to the mother, later to the father and then to other people, is to be seen the primary socialising pattern, the task of learning to become a human being. That the attributes of personality are a function of living in a human society and that the baby is born only with the potentiality to become a person but has to be taught to become human, is demonstrated clearly by two phenomena: firstly, by the development of children born without the necessary sense organs to perceive, communicate and interact with their environment, such as the deaf and dumb (Helen Keller being the most famous example); secondly, by the development of children who by some chance or mishap have been isolated from normal human conduct during early infancy (for example the case of Anna described by Kingsley Davis) (12).

The infant soon learns that in order to be loved he must satisfy the requirements of others and co-operate with them. Mothering to begin with ensures the sheer survival of the baby but the complete indulgence of all his wants is changed gradually into a series of regulatory pressures. "By withholding adult co-operation, which is so essential to the infant, the parent has constantly at his command a device for increasing the infant's variable, exploratory behaviour, and for then selectively rewarding (by responding to) those new, more adult-like responses, which make their appearance" (13).

Experimentally it is easier and more unequivocal to show the negative side, namely the results of development when babies are deprived of love and affection. In recent years there have been very similar findings in different countries regarding the unfavourable and often lasting effects on personality development of what has been termed maternal deprivation (Bakwin, Ribble, Bowlby, Spitz and Goldfarb, to mention a few). Frustration of the need to receive love from the mother or mother substitute—once such love has been experienced—produces in the very young infant anxiety, anger, despair and finally symptoms very akin to depression. Physically, too, the child becomes much more vulnerable to infection, especially gastro-intestinal and respiratory disorders.

5. The Development of Anxiety

"The concept of anxiety is very important for understanding the emotional life of the child even though there is much diversity, at present, in the definition of anxiety, its origin and role" (4). I propose to single out some of the theories which consider the development and role of anxiety in the parent-child relationship and later in class-room learning.

Once a child has learned—through a loving mother's reaction to him—that he is important and excellent, this satisfying experience is "ever afterwards craved and so constitutes a powerful driving force of human nature" (14). Conversely, disapproval and possible loss of love arouses anxiety. Sensing the mother's displeasure or disturbed emotional tone, even very young infants become restless, irritable, show feeding problems, and so on. Thus anxiety is induced by the disapproval of people who are significant within the child's inter-personal world. There is research evidence to suggest that even pre-natal conditions may predispose a child to anxiety (15).

It was Freud who first worked out a theory of how human beings come to learn anxiety in the face of disapproval and loss of love. He held that children learn to become anxious about their mother's loss of love, because it is associated with pain. When she disapproves of her child—implying a loss of love—she tends at the same time to punish in some way or other. Freud's solution was an associationist one and it can be reformulated in a stimulus-response terminology. It could be argued that maternal disapproval and withdrawal of love become conditioned stimuli eliciting anxiety and that the learning process obeys essentially the same laws as Pavlovian conditioning. To explain how children come to feel anxious not only about their

mother's disapproval but other people's—Freud's "moral anxiety"—one would apply the principle of generalisation: stimuli which are similar to the original conditioned stimulus, have the power of evoking the conditioned response by virtue of their similarity. Thus Lynn postulates that the acquisition of anxiety should be viewed as a task of discrimination learning (16). Children can only be taught to associate disapproval and loss of love with anxiety, if they are able to discriminate love from loss of love. The more distinctive the cues are, the more easily the learning is accomplished. Hence the apparent paradox that a child learns to be anxious more readily in the warm, accepting atmosphere of the happy family than in a rejectful or frigid situation, be it a broken home or an institution. The greater the child's general sense of love and security, the more distinctive are the cues of loss of love. This hypothesis supports the common clinical finding that it is over-protected children who are the most anxious. For rejected and deprived children the cues are blurred. A similar blurring may be caused by inconsistent handling. Burt, Healey, Bronner and others have drawn attention to the important role played by the inconsistent mother in the formation of the delinquent and psychopathic personality.

During the growth from infancy to childhood, anxiety continues to play an important part. It appears whenever others criticise, snub or disapprove of the child. Anxiety is such a painful and disturbing emotion that most children will go to considerable lengths to avoid behaviour that might arouse it. In everyday life anxiety has positive as well as negative value. Because he wishes to avoid this feeling, the child learns to be considerate in his relations with others and to conform to laws, customs and taboos.

6. The Role of Anxiety

"The function and role of anxiety in learning is so far only partly understood" (8). It seems, however, that much of the motivation for learning stems from what one might term "normal anxiety". This is particularly true of the learning that occurs within the context of social situations. Children learn to modify their behaviour in order not to disappoint or offend their parents, teachers or playmates. Even those skills classed as "intellectual" may be mastered, at least in part, as a means of reducing or avoiding anxiety. For example, children may learn to read because their parents and teachers expect them to do so and because their contemporaries are acquiring this skill; failure would lead to feeling different from the group and would

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evoke the disapproval of the powerful adults; by learning to read these anxieties are avoided.

The practical implications of research carried out so far on the effects of anxiety on learning are not easy to see. Only a beginning has been made in exploring this problem systematically and some of the findings may seem conflicting. Snygg and Combs found that over-anxiety has the effect of "narrowing the perceptual field", thus interfering with successful problem-solving (6). This conclusion is confirmed by Beier who states that "individuals who are faced with threat and who are in a state of anxiety show a loss of the 'abstract' qualities, or more specifically, face a loss in flexibility of intellectual function" (17). Lynn suggests that anxious children do better at reading than at arithmetic and postulates that some pupils do not learn to read because they are not anxious enough (18). Clinical experience, including my own, suggests, however, that among reading failures one can distinguish at least three groups: some children fail because neither they nor their parents set great store on this achievement; for a second group of children serious anxieties about other matters, such as parental disharmony, make learning to read an area of comparatively minor anxiety; lastly many fail to learn to read for the opposite reason, namely too much anxiety.

Montague found that a high level of anxiety helped in the learning of simple material but interfered with the learning of complex material (19). This suggests that the over-anxious person, when reassured by the realisation that the task to be learned is easy and within his capacity, can then proceed to learn it more effectively, since his anxiety has been reduced; on the other hand, complex material reinforces his already considerable anxiety, thus interfering with effective learning. These findings are supported by another study which showed that people with a high degree of anxiety were less able to improvise and hence less successful in learning complex and novel tasks (20).

Janis and Feshbach showed that deliberate attempts to arouse strong anxiety produced less favourable results in the behaviour of learners than more moderate methods (21). Mandler and Sarason compared the abilities of people with high and with low levels of anxiety to learn a manipulative task. At first a high level of anxiety interfered with the performance of the task. However, as the experiment proceeded, the anxiety drive appeared to help the "high-anxiety" group to improve their scores. Informing the two groups of their success or failure resulted in improvement in the scores of

the "low-anxiety" group but depressed the scores of the "high-anxiety" group. There was greater variability in the scores made by the "high-anxiety" individuals, indicating that anxiety is not a stable factor in learning but has a different effect on different persons (22).

Thus it may well be that some anxiety is conducive to learning and that for each individual there is an optimum level of anxiety which leads to maximal learning; perhaps it is this level which should be called "normal" anxiety. On the other hand, a level of anxiety which is too high or too low seems to lead to ineffective or insufficient learning. With regard to children's educational failure, there is a great deal of evidence to suggest that "most teaching problems stem from a super-abundance of anxiety rather than a lack of it" (8).

7. THE ROLE OF COMPETITION

One factor that increases anxiety is competition. It is now fairly generally accepted that it is an acquired and not an innate drive and that cultural values determine the development, the extent and the direction of competitive traits. The results from animal experiments show that different competitive experiences in early life have an observable effect upon "adult" behaviour. For example Fredericson's work with mice supports the hypothesis that a limited period of competition for food during infancy will result in competitive behaviour at a later stage despite absence of hunger (23). Of course competition has its satisfying effects, and is rewarding in terms both of socially approved achievement and of the increased security of those who compete successfully. But encouraging competition in the classroom gives rise to two difficulties: firstly, if all children were of equal ability, competition (characterised by weekly or monthly class lists) would only be a measure of effort made; in practice, even when there is streaming, pupils are of mixed abilities so that the less able group remains comparatively unsuccessful. If a goal is felt to be unattainable there is a tendency for effort to diminish partly because a long record of failure and a sense of rejection are liable to lead to excessive anxiety. An overemphasis on competition leads to an emotional climate where winning or being first is the important goal; learning is no longer important for its own sake or for the basic needs it can meet. Under an intense system of competition, most children are doomed to failure since only a select few can succeed. For example the most serious objection to the 11 + examination is that in most areas less than a quarter of those entering have any hope of succeeding.

The second difficulty lies in the fact that encouraging competition interferes with the development of co-operative attitudes. This has now been shown experimentally (24) though clinicians have for some time expressed concern about the disruptive effects of competition. Adler, for example, stated that "under our present system we generally find that when children first come to school they are more prepared for competition than for co-operation. . . . This is a disaster for the child; and it is hardly less of a disaster if he goes ahead and strains to beat the other children than if he falls behind and gives up the struggle" (25). That this is not only an individual disaster would be held by those who believe that co-operative behaviour has great survival value and that evolution in man has been increasingly directed toward the fuller development of co-operative behaviour. If this be accepted, then the skills of co-operation are far more basic to successful living than the skills of competition. Yet many children experience a severely competitive climate at home and siblings or other children may be held up as examples even when emulation is beyond the child's capacity. Similarly, parental pressures and expectations bear a measure of responsibility for the competitive atmosphere which prevails in many schools.

8. Practical Implications

How to use anxiety and competition constructively in a predominantly competitive society, is a complex problem. "One of the characteristics of successful learning is to produce tension and anxieties. . . . When learning really takes place, it means that there has been some change in the learner. We seldom welcome change. All that is childish and immature within us struggles against the necessity for change. . . . In effect, we realise that we are unable to meet our basic needs successfully, and we become anxious for fear that we might never be able to meet them" (8). Frustration and anxiety are not only inevitable in the process of growth and development but may be conducive to it, provided they are appropriate to the individual's level of tolerance. "In order that effective integration may take place in the child's mental development, conflicting drives, impulses, external demands and ideas must be balanced, not eliminated" (26). How easy is it to achieve such a balance? There are many conditions in present-day life which intensify anxiety and uncertainty. To mention just a few: the emphasis on economic competition; rapid and major scientific and technological developments such as atomic

science and automation; a change in social and moral standards developing in the aftermath of a world war and a social revolution; the increasing instability of family life. If parents and teachers suffer from feelings of anxiety, personal conflict and doubt, these feelings are likely to be communicated to the children in their care. The most stable and "emotionally tough" children may be able to resist the effects of an atmosphere laden with anxiety; the rest—possibly the majority—may, to a greater or lesser extent, become predisposed or conditioned to excessive and thus harmful anxiety. Early parental handling will influence children's later attitudes to learning. For example, Hattwick and Stowell found that children who were either "pushed" or "babied" had more social and academic difficulties at school than those not subjected to such parental treatment (27). And it has been argued "that all of a child's worries, fears, anxieties, self-consciousness, feelings of inadequacy, his relations to his parents, siblings and to himself, tend to gain reflection in the school situation" (28).

On the other hand, many of the circumstances that affect a child's self-esteem and respect, arise in connexion with his life at school where he is "exposed to failure or the threat of failure on a colossal scale" (4). By the nature of the academic and social setting children become involved in many competitive situations of their own making in addition to those provided by the teacher. Children try themselves out in countless ways, realising their strength and discovering their limitations.

The teacher who sees his role in a wider framework than the inculcating of skills and information can counteract or at least mitigate the unfavourable consequences of over-anxiety and competition. He will endeavour to gauge the emotional climate of his classroom as well as the degree and extent of anxiety shown by individual children, particularly those who are failing; he will plan to reduce anxiety where it interferes with successful learning and to increase it where it seems lacking; he will limit the use of competition in situations where only a minority have any chance of success and instead provide all pupils with opportunities for positive achievement. Thus "normal" or "tolerable" anxiety is utilised as a motivating force in the learning of tasks which are within the child's capacity though he may have to make a considerable effort in order to succeed. Competition will be used as a group incentive only for those of similar standing; where there are considerable individual differences in learning capacity, competition will be used positively by encourag-

ing a child to surpass his own past achievement, i.e. competing with his own efforts.

The effect of emotion on learning needs to be given greater practical recognition, especially in the classroom, by relating material to be learned to the self-concept, ego-ideal or level of aspiration of the learner. Research has shown that the successful pupil tends to set his aspirations at a realistic level, whereas the failing child is liable to set them too high or low. The level of aspiration a learner sets himself, is related in part to past experience and in part to his self-concept or ego-ideal. Moreover, the child who is made to feel guilty or anxious because of his failure often becomes more concerned about avoiding anxiety than about analysing and profiting from the reasons for his failure. Whatever their level of ability, children need to experience in their learning the stimulus of success as well as the discipline of failure, without a feeling of guilt or despair. Divorcing or isolating the intellectual from the emotional side of life, is unlikely to lead to the successful teaching of any but a minority.

9. Case Studies

To illustrate the relationship between anxiety, competition and successful learning at home and in school, the cases of three children who have been studied at the University's Remedial Education Centre will be described in some detail.

(a) A Six-Year-Old Boy

Gordon, aged 6 years, was referred for refusing to speak though he had been at school for over two terms. In her report the headmistress added that he was very apathetic, would not talk to other children, not even in a whisper, and that he was tolerated rather than disliked by his contemporaries. The diagnostic examination at the Centre, consisting of two interviews lasting an hour each with the mother, and a morning spent with the child, brought to light the following factors which seemed to have some bearing on Gordon's present difficulties.

Family circumstances. The father, a semi-skilled worker, had been with the same firm ever since starting work; before marriage the mother worked in an office. There were three children: an older sister, a younger brother and Gordon, whom mother described as a slow, sulky and shy child. There seemed to be a marked difference in temperament between him and his siblings who, from the mother's description, seemed intelligent, quick and responsive children. For

some time the mother had been concerned about Gordon's slowness, refusal to talk to strangers and reluctance to speak except to members of the family—"People might think he is really stupid the way he acts when we meet anyone." He had no friends and never talked about school. Father took the line that he himself had also been shy and that Gordon would grow out of it.

Maternal attitude. There were a number of circumstances during Gordon's early life which had made the mother more anxious than she had been with his siblings. Because of her pregnancy she had to leave her flat (only one child was permitted) and housing difficulties continued for some time. Though she had hoped for a boy, his comparative slowness (i.e. in sucking and toilet training) disappointed her. She then discovered that her husband was illiterate, which greatly increased her anxiety since she feared Gordon might be like him. Apparently the parents had been close neighbours for many years before marriage and there had never been any need for correspondence. Mother had made various suggestions to help him to learn to read and write, but the father was adamant in refusing to do anything about it. Lastly, the youngest child was born only 14 months after Gordon and he proved to be a quick, responsive baby. Toilet training had been severe, partly because Gordon was slow and stubborn and partly because mother in any case believed in very early habit training.

The child. Despite mother's evident irritation and embarrassment Gordon would not say a word in her presence. When he was left alone with the examiner and realised that he was "not being made" to talk, he became quite friendly and soon whispered though he never used a normal voice. He was found to be of average intelligence and there were a number of indications that this was likely to be an underestimate. Though slow in everything, he took great care, showing considerable persistence and a determination to finish what he had started. This painstaking, almost obsessional attitude was also noted in his drawings.

Working hypothesis. Gordon had been both over-protected and dominated by his mother who had tended to identify him with her husband (whom she regarded as a failure). This led her to make unfavourable comparisons between the boy and his brighter siblings, to hurry him over his early learning (partly because of her own quickness) and at the same time to do too much for him because of his very slowness (partly passive resistance on his part?). There was a real loss of love after the birth of his younger brother, who needed

his mother's attention and soon proved more satisfying to her, and a further felt loss of love was caused by her increasing impatience and disappointment with him. As a result of her rejection and ambivalent handling, Gordon had become shy, asocial, infantile and submissive; but combined with his insecurity and uncertainty, there developed a strong streak of hostility and stubbornness, shown by his refusal to be hurried or to talk outside the family circle despite, or perhaps because of, his mother's strenuous attempts to make him do both. Thus Gordon showed many features characteristic of the dominated, over-protected child who is distrustful of the world and follows a pattern of non-co-operation in situations requiring give and take (29, 30).

At school the home situation seemed to be re-enacted. Anxiety was provoked by the competitive setting of a large class and by an elderly teacher who, although quite kindly, treated Gordon's silence as defiance which had to be broken down and his slow passivity as laziness which would respond to "jollying along" and to comparisons with other children. This attitude resulted in Gordon feeling "unloved" once again and retreating from the competitive challenge into stubbornness and silence.

Aims of treatment. At the first case conference it was decided that emotional re-education should be along the following lines:

(i) With the home: to enable the mother to appreciate the positive qualities in Gordon's personality, such as his persistence, neatness and thoroughness; to accept the fact that he is not mentally dull but needs to be allowed to learn at his own pace; to encourage him to talk not by pressure in public but by helping him to stake his claims vis-à-vis his more forceful siblings (according to father Gordon "never gets a word in edgeways"); to encourage mother to see father's positive qualities and accept the fact that despite his illiteracy he is not a stupid man (though refusing promotion and thus a higher wage at work, he is a most gifted handyman in his own home); to encourage father to play a more active part in his children's upbringing, especially Gordon's.

(ii) With Gordon: to give him the experience (which he may have missed in early childhood) of being accepted unconditionally and valued for his own sake; to allow him, once he has formed a secure relationship, to express his hostility and ambivalence towards the adult world; to let him set the pace in a permissive, unstructured environment rich with opportunities for creative, imaginative activities.

Thus our work aimed at integrating the boy into his family setting

as a loved, accepted member, restoring his self-confidence and self-respect and enabling him to face competition and possible failure without retreating into his shell.

Results of Treatment. Though considerable changes have taken place it is too early to say whether they will be lasting since Gordon has only been attending for a period of five months (once weekly). At the Centre he not only talks freely but shouts and laughs loudly; at home he is becoming increasingly able to hold his own and though still slow, is less sullen and stubborn. His mother has been delighted to see him so active and lively when at the Centre and recently reported with unexpected pride: "He even cheeked me the other day." He is asking boys in to play and is learning to prevent his siblings from interfering with his activities. At school he is not yet talking normally but is now replying in whispers and beginning to take a more active interest in what goes on.

(b) *A Nine-Year-Old Girl*

Shirley, aged 9 years, was referred because of retardation in all English subjects. The headmaster stated in his report that she seemed an intelligent girl and in a recent non-verbal group test had scored an I.Q. of 118; she lacked confidence and was a poor mixer.

Family circumstances. Born illegitimately to two doctors, one of whom was married already, Shirley was adopted when 2 weeks old. Since her real parents played no further part I shall refer to the adoptive parents as "mother" and "father". The latter, a foreman in a car factory, was not educationally ambitious for the child, but expected her to do well educationally because of her "superior background".

The mother had very much wanted a daughter and when she realised she could not have any children, decided to adopt one. She was then just over 40 years old. Awareness that the child came "from a much higher social class" led her to feel a mixture of pride, ambition and a sense of heightened responsibility "to make up for what she has lost". The mother had left school at 14 and worked in a shop until marriage. Now they were quite comfortably off but it was not a cultured home and neither parent was interested in books.

Maternal attitude. Being an over-anxious and fussy woman, the mother set great store on cleanliness, tidiness and politeness. Shirley had conformed to these high standards of behaviour by being "a good, easy baby" and a "gentle, obedient toddler". The fact that she was fussy over food and apparently needed little sleep was attri-

buted by her mother to her "refined nature and superior heritage". Until she started school Shirley had been discouraged to play with other children since they were "not the right type". When she started school, her attendance was rather irregular, partly because she tended to suffer from bronchitis and partly because mother kept her at home at the slightest provocation. However, Shirley was fairly happy while at the infant school. It seems that her difficulties began when she went up to the juniors and that they were linked with three circumstances: her teacher was a rather strict woman, who frightened Shirley by frequent shouting and punishment; she found that compared with her contemporaries she was rather backward in reading, perhaps because of her frequent absences as well as fear of the teacher; thirdly, she was told by another child that she was adopted. The parents had kept this fact from her all along. Now they dismissed it as "stupid gossip", told her to ignore it and reassured her that it was untrue. At the same time the mother was very upset and decided to move to a different neighbourhood, ignoring the fact that all her relatives knew that Shirley was adopted and that the child was likely to have overheard discussions long before going to school. Though she did not refer to her adoption again, Shirley developed nightmares, screaming and walking in her sleep. She was no happier at her new school, becoming increasingly timid and solitary. At home she loved helping but was rarely allowed to do so, partly because her mother wanted her "to enjoy childhood" and partly for fear of accidents.

The child. Throughout the interview, Shirley was overanxious to please. Her manner was gentle and diffident, she spoke in a soft, pleasant voice and in appearance, dress and bearing conveyed the impression of a rather old-fashioned "young lady". The precociousness of her conversation further enhanced this impression. She was found to be an able child (I.Q. 128) but seriously retarded in all English subjects (4 years in mechanical reading, 3 years in comprehension reading, 5 years in spelling and in composition). In the personality test Shirley readily expressed her fears and worries as well as her knowledge of being adopted.

Working hypothesis. Shirley's emotional and educational difficulties seemed to be caused mainly by three circumstances: maternal over-anxiety, over-protection and high social aspirations, leading to the child's over-dependency, lack of confidence, fear of failure and inability to mix; anxiety over her adoption which had never been brought out into the open though she clearly knew about it; absences from school and a fear of teachers.

Aims of treatment. It was decided that emotional re-education should be along the following lines:

(i) With the home: to help the mother to accept the necessity of telling Shirley that she is adopted and to give her some guidance on the kind of questions she must expect from the child; to suggest various ways of giving the girl an increasing measure of independence, allowing her to have some responsibilities in the home and to encourage her to make friends with her contemporaries; to modify the maternal stereotype of a "well-bred, high-born young lady".

(ii) With the child: to support her through any stress that might arise when the mother tackled the adoption problem; since she seemed ready to express her anxieties through projection material, to give her opportunities for doing so in miming, puppetry and drama which might also lead to increased social contacts; to begin remedial work in English straight away but well below her present level of attainment to help her to regain confidence.

Results of treatment. As we came to know the mother better, it became clear that she was a much more anxious and obsessional woman than was apparent at first. Her days and weeks were arranged according to a strict and unalterable routine, she was always worrying about something and she proved resistant to suggestions. Despite agreeing with us that it would be wise to talk to Shirley about her adoption, she kept postponing it "until the right opportunity comes". On the other hand, she began to allow the child greater independence, encouraged her to bring one or two girls home and arranged for her to have dancing lessons; this the child had longed for and we thought it might help her to gain confidence. When Shirley's educational attainments began to improve, mother's anxiety became directed towards the 11 + examination; previously she had condemned parents who pressed their children educationally but now she felt that she "would never forgive herself if Shirley missed the opportunity of going to the grammar school seeing how intelligent her real parents were". She also worried lest "failure" would make the child again lose confidence.

Shirley made considerable improvement all-round during her period of attendance (six university terms, 46 individual sessions). Thus her reading age increased by $5\frac{1}{2}$ years, her spelling age by 3 years and her written composition, though still slow and much inferior to her oral work, was average for her age. The nightmares and sleep walking ceased, her dislike of school changed to cheerful acceptance (though not a positive liking) and she made one or two

friends. Remarks made to her mother and to us showed not only that she knew about her adoption but that she had come to terms with it. For example, when out shopping with her mother one day, she met another girl who attended her school and said: "I wish you or some other mother would adopt her; she never has any nice clothes, or ribbons or nice things to eat during the morning break." Her mother replied: "But she has a mother of her own", which Shirley countered by saying: "But her mother is not good to her like you are to me. It doesn't matter having an adopted mother if she loves you and looks after you." Even such remarks did not persuade the mother to broach the topic but it reassured both her and us that Shirley was no longer bewildered and unhappy about the adoption.

We prepared mother for the fact that Shirley was unlikely to succeed in gaining a special place, partly because she was still educationally retarded, and partly because she never did her best under examination conditions. In the particular area, children were given a second chance of entry into the grammar school at 13 + and it was suggested that she might stand a better chance then. Since Shirley seemed much improved in emotional adjustment and was making steady educational progress, it was felt that she could be discharged. Moreover, it would enable her to make a completely fresh start at the secondary modern school without being singled out in any way. A follow-up examination two years later showed continued but rather slower progress both educationally and emotionally: she was in an A stream but only in the bottom section; she had only a few friends; at home she had many more responsibilities which she enjoyed and she was beginning to "mother" her mother (for example at the Centre she turned to her mother before following the examiner and said soothingly: "Now don't worry, dear, everything will be all right"). There had been no recurrence of symptoms denoting emotional disturbance but for a girl of her age she had unusually high standards of orderliness and politeness.

Thus it seems that only partial success was achieved with mother and daughter. Being an elderly, over-anxious and aspiring woman the mother continued to set too high standards for the child and to create an emotionally tense atmosphere in the home. The process of emotional re-education brought about some reduction of the child's anxieties, through creative activities, social stimulation and educational improvement, all of which enhanced her self-confidence. Though no direct interpretations were given, she was also helped to come to terms with the problem of her adoption. Yet she remained to some

extent socially timid, educationally retarded and emotionally vulnerable.

(c) *A Ten-Year-Old-Boy*

Terence, aged 10 years, was referred mainly for diagnosis. The headmistress stated that he had been regarded as a mentally very dull child but recent developments suggested he might be able but educationally retarded. His present teacher had taken a special interest in him—to begin with because she felt sorry for him since he seemed a timid, worried boy with a bad speech defect, few friends and clearly afraid of teachers and of school life generally. He rarely took part in any oral work, never made spontaneous contributions and often seemed "miles away". Well behaved and very retiring, he easily escaped attention. However, from her observations, his teacher came to suspect that the boy might be deaf; a specialist examination confirmed this and he was fitted with a hearing aid. She then came to think his vision might be defective and once again was proved correct and he was given glasses; after two terms in her class, he had become less anxious, willing to take part in oral work and eager to talk about his interests. The quality of some of his contributions made her wonder whether he might not be an able boy despite his poor educational attainments and despite the opinions held by his previous teachers.

Family circumstances. Both parents had had a grammar school education and the father was an insurance clerk. Their 13-year-old daughter had always done well educationally and was now attending a grammar school. The family seemed to be happy and closely-knit with both parents sharing and stimulating their children's interests; brother and sister were said to get on well together and no unfavourable comparisons had been made between their widely differing educational achievements. The only sorrow and anxiety had centred around the boy's physical disability: he had been born with a cleft palate which had necessitated seven operations before the age of 6 years; the parents had insisted on daily visiting him even though it meant quite a fight with one hospital; his speech had become increasingly more intelligible but the last operation had made matters worse and continued speech therapy seemed to have little effect. The family's disappointment was all the greater since it had been hoped that no more operations would be needed. In view of the deterioration in his speech, the specialist had not made a final decision and Terence knew he might have to face yet a further operation.

Maternal attitude. The boy was a much wanted baby and when she knew of his handicap the mother said she felt she "loved him even more because he would have to suffer". Not only did she realise that he would need all the love and support she could give him, but she was also aware of the danger of over-protecting and smothering him with pity. While realising that his learning was bound to be slower, she deliberately tried not to make him overdependent on her and gave him plenty of stimulation for talking and for social relations outside the home; thus she succeeded during the pre-school years in minimising the effects of his handicap and his frequent hospitalisation. No comparisons were ever made between him and his sister. At the same time she never thought of Terence as a dull child until he started attending the junior school.

Soon he became very reluctant to go to school, had tummy-aches and bouts of sickness, slept badly and clearly was most unhappy. She became torn between letting him stay at home or making him go to school unless he was really ill; she began to fear that she had overprotected him and given him so much love that he was now afraid to venture out and face competition. Fearing that she had given him too much praise at home for all his efforts, she taxed him with laziness when he brought home a particularly damning report saying, "Does not even try." At this he broke down weeping bitterly, protesting that he always had tried and begging her for help. The mother then realised the full extent of his unhappiness at school. She went to see the head and the class teacher, explaining that she had no educational ambitions for him and only wished that he should not feel too different from other boys.

After a comparatively brief period with his present teacher, his attitude to school changed quite dramatically. He began to talk at home about what he was doing, the extra help his teacher was giving him and his new responsibilities in class. The mother said her unhappiest moment came when, shortly after he had been fitted with a hearing aid, she was told he needed to wear glasses: she felt that circumstances were increasingly singling out Terence as being, and even looking, different. Yet he himself accepted these new burdens quite well and his teacher had briefed the other children not to comment on his new aids.

The child. At the beginning of his interview at the Centre, Terence was somewhat reserved and shy. Soon, however, this was replaced by a most engaging, sensible and poised manner revealing an unexpected maturity and sense of humour. Though it was difficult

at first to understand him, he willingly repeated what he had said and despite this initial difficulty, did not desist from making spontaneous comments. While praise and success greatly pleased him, he made persistent efforts when faced with difficult problems and was able to accept failure in good part. His intelligence quotient was found to be 150. Educationally he was severely retarded, having barely reached the seven-year level in the basic subjects.

Working hypothesis. Terence had been enabled by wise and loving parental handling to develop into a mentally healthy child with a good personality structure. Despite a severe physical handicap, frequent hospitalisations and the shocks of surgical interventions his emotional and social growth had been normal and his capacity for personal relationships unimpaired. Probably because he had taught himself to lip-read, his partial deafness had escaped attention at home; at school one would have expected it to be a contributory factor in his learning failure. While one can see the problem of a teacher who has a handicapped child in a class of 50 children one can also see the causes of the boy's failure and unhappiness at school: unable to make himself understood quickly and without special attention; unable to hear properly and prevented from lip reading by the teacher's normal movements around the classroom; becoming increasingly slower at his work, as his ability to hold his own decreases; bewildered by his failure and the fact that it is causing his mother unhappiness; considering the daily and cumulative impact of these experiences on a sensitive and mentally able child, it suggests considerable stability that a more serious breakdown was avoided. No doubt continued parental support and the continued enjoyment of a happy family life contributed to avoiding complete despair or retreat.

Conference decision. Both the headmistress and class teacher attended the case conference. Though he was likely to benefit from remedial teaching, it was decided to watch his progress during the next six months. Now that his good ability was known, his teacher was hoping to bring about quickened progress without fear of expecting too much from him. As he had had so much specialist attention, was still attending a speech therapy clinic and also was missing school because of various re-examinations at the hospital, an additional weekly half-day's absence might be unwise. The headmistress decided to let him have another year with the same mistress even though it would mean promotion to a B stream. His case would be reviewed at the Centre in six months time.

10. Conclusion

The complexity of the relationship between learning and emotion stems from several sources. Perhaps chief among them are the complexity of the "material" itself and our comparative ignorance of the intricate workings of human beings; it also derives from our approach which—perhaps inevitably—is piecemeal. This leads to the danger of creating false questions. We are forced to investigate the various aspects of human personality separately but then may go on to discuss how these arbitrarily distinguished aspects are related to each other. Yet cognitive and orectic aspects are indivisible and I have outlined how they develop together from early childhood. The mother-child relationship provides both the incentive and the condition for learning. The way to maladjustment and the way to educational failure are often along the same path. That is so just because of the very close and constant inter-relationship between learning and emotion. Conversely, satisfactory relationships and successful learning together with the ability to tolerate "normal anxiety" are shown by children who have been reared in homes where unconditional parental love has been balanced by appropriate demands for increasing social and emotional independence. I have concentrated upon early learning processes because the greater part of children's most basic learning experiences take place in the home, particularly during the pre-school years. Attitudes towards oneself and others, standards of right and wrong, the ability to love and work, in short the development of all human potentialities depends to a considerable extent upon the stimulation and handling received during infancy and childhood. Of course learning—defined behaviouristically as the alteration in behaviour resulting from experience—continues throughout life. It is the extent of this ability which appears to be determined early in life.

REFERENCES

1. The following paper contains the substance of two lectures delivered during a course on the Psychology of Learning, organised by the University of Birmingham Institute of Education and held at the City of Worcester Training College in the summer of 1957.
2. Morgan, Lloyd C. L., *Animal Behaviour*, London, Arnold, 1900.
3. Montagu, M. F. Ashley, *The Direction of Human Development*, London, Watts, 1957.
4. Jersild, A. T., "Emotional Development", in Carmichael, L. (ed.), *Manual of Child Psychology*, London, Chapman and Hall, 1954, ch. XIV.

5. Linton, R., *The Cultural Background of Personality*, New York, Appleton and Century, 1945.
6. Snygg, D. and Combs, A. W., *Individual Behaviour*, New York, Harper, 1949.
7. Maslow, A. H., *Motivation and Personality*, New York, Harper, 1954.
8. Lindgren, H. C., *Educational Psychology in the Classroom*, London, Chapman and Hall, 1956.
9. Tilton, J. W., *An Educational Psychology of Learning*, New York, MacMillan, 1951.
10. Dennis, W., "Infant Development under Conditions of Restricted Practice and of Minimum Social Stimulation," *Gent. Psych. Monographs*, 23, 1941.
11. Sullivan, H. S., *The Meaning of Anxiety in Psychiatry and in Life*, Washington, The William Allanson White Psychiatric Foundation, 1948.
12. Davis, K., "Extreme Social Isolation of a Child", *Am. Jnl. Soc.*, 45, 1940; also 52, 1947.
13. Mowrer, O. H., and Kluckhohn, C., "Dynamic Theory of Personality", in Hunt, J. McV. (ed.), *Personality and Behaviour Disorders*, New York, Ronald, 1944, vol. I, ch. 3.
14. Moore, T. V., *The Driving Forces of Human Nature*, New York, Grune and Stratton, 1948.
15. Sontag, L. W., "The Significance of Foetal Environmental Differences", *Am. J. Obstetrics and Gynaecology*, 42, 1941.
16. Lynn, R., "Conditioning and the Psychopathic Personality". Paper given to the Brit. Psych. Society, March 1957.
17. Beier, E. G., "The Effect of Induced Anxiety on Flexibility of Intellectual Functioning", *Psych. Mongr.*, 63, No. 365, 1951.
18. Lynn, R., "Temperamental Characteristics Related to Disparity of Attainment in Reading and Arithmetic", *B. J. Ed. Psych.* 27, 1956.
19. Montague, E. K., *The Relationship of Anxiety to Rote Serial Learning*. Unpubl. dissertation, Univ. of Iowa, 1950.
20. Ausubel, D. P., Schiff, H. M. and Goldman, M., "Qualitative Characteristics in the Learning Process Associated with Anxiety", *J. Abnorm. Soc. Psych.*, 47, 1952.
21. Janis, I. L. and Feshbach, S., "Effects of Fear-arousing Communications", *J. Abn. Soc. Psych.*, 48, 1953.
22. Mandler, G. and Sarason, S. B., "A Study of Anxiety and Learning", *J. Abn. Soc. Psych.*, 48, 1953.
23. Fredericson, E., "The Effects of Food Deprivation upon Competitive and Spontaneous Combat in C 57 Black Mice", *J. Psych.*, 29, 1950.
24. Grossack, M. M., "Some Effects of Co-operation and Competition upon Small Group Behaviour", *J. Abn. Soc. Psych.*, 49, 1954.
25. Adler, A., *What Life Should Mean to You*, London, Allen and Unwin, 1932.
26. Tyler, R. W., "Co-operation and Conflict in the Mental Development of the Child", *Mental Hygiene*, 32, 1948.
27. Hattwick, B. W. and Stowell, M., "Relation of Parental Over-attentiveness to Children's Work Habits and Social Adjustments", *J. Educ. Research*, 30, 1936.

28. Klein, E., "The Reluctance to go to School", *Psycho-anal. Stud. of the Child*, vol. 1, 1945.
29. Levy, D., *Maternal Overprotection*, New York, Columbia Univ. Press, 1943.
30. Symonds, P. M., *The Dynamics of Parent-Child Relationships*, New York, Bureau of Publications, Teachers College, Columbia Univ., 1949.

BOOK NOTICES

George Z. F. Bereday and Joseph A. Lauwerys (eds.): *The Year Book of Education, 1957. Education and Philosophy*, Evans Bros., 1957.

Behind all good education there is a philosophy, and that philosophy will inevitably give education its quality and its character. When clearly formulated, educational practice possesses direction, purpose, and consistency; when unformulated, inconsistency and uncertainty are likely to prevail . . . the teacher cannot afford to be merely an empirical practitioner profiting by his failures and attempting to repeat his successes. . . .

But our theme covers more than the right balance between theory and practice, a question which arises in many fields of human inquiry. In education there are different levels of theory. A teacher might endeavour to confine himself to those levels of theory which seem to have the most direct bearing on his work, such as child development and educational psychology. Sooner or later, however, he discovers that if he is to foster growth in knowledge on the part of students he has to ask questions about the nature of knowledge; if he is to deal with young people as individuals or in their social setting he has to ask questions about the nature of society and the nature of man; if he is to carry some responsibility for the moral education of his pupils he must himself discover and interpret the right canons of good conduct. In short, the teacher finds himself asking all the great questions that have occupied the minds of philosophers and religious thinkers through the ages. . . .

Yet the question raised by our theme runs deeper still. Any intelligent person as he lives through life must inevitably form his own attitudes towards great questions of philosophy and religion. . . . These attitudes, expressed or unexpressed, will very largely determine what manner of man he is. The teacher is in a peculiar position because his fundamental attitudes will determine his attitude towards his pupils. . . . It is often said that the teacher must have regard to the whole personality of the child. It is equally true that the teacher should be himself a distinct personality, one comprising within its integral whole a skilled and practised artist in his craft, an upright man in his private life, and one who has looked the great facts of existence in the face and found some answer. . . .

If the philosophy of a teacher inevitably affects his teaching, it is equally true that the philosophical traditions of a nation determine the character of its educational system and institutions, and that every new departure in those traditions will lead to changes in the system and institutions. Teachers, schools and society form an inextricable whole.

This clear and economical statement of a very complex theme is taken from the Introduction written by the Joint Chairmen of the Editorial Board of *The Year Book of Education* for 1957, now produced in co-

operation between Teachers' College, Columbia, and the University of London Institute of Education. In the passage quoted it is not difficult to discern the mind and style of the English Chairman, the late Dr G. B. Jeffery.

Throughout history, from Plato to John Dewey, there have been expositions of educational theory and practice, inspired by some particular belief, or set of beliefs, about the nature of man and society. Nor does anyone in our day doubt the importance of relating our educational programmes to our underlying beliefs. There has not, however, been much attempt to study the relation between philosophy and education as an historical and comparative problem—to inquire what in fact that relation is. What is the role of the individual thinker or reformer; does he influence his world or is he the product of his world? What is the relation between ideas and practice; do ideas inspire practice or are they the fruit of experience? Is there any escape from the dilemma indicated by the Editors of the *Year Book* in their Introduction: "Without institutionalisation, the cherished ideas will die. With it, they will be changed and falsified." (The Editors shrewdly remind us that it is always easier to copy an institution than the idea embodied in it.)

These questions, and others connected with them, are the concern of the *Year Book*. It can be no accident that this theme has been chosen for this year's issue. International interchange of thought and experience, and particularly the work of UNESCO, have aroused interest in comparative study, and political and economic tensions force us to inquire into the relations between ideas and practice. There is a new awareness, in the study of education, of the importance of inquiring into the sociological and ideological context of particular systems and practices. Other signs of the times, besides the Year Book for 1957, are two recent books—*Education and the Philosophic Mind*, edited by Professor A. V. Judges and published earlier this year, and *Modern Philosophies and Education*, published in 1955 by the National Society for the Study of Education, Chicago.

It is not to be expected that a book like the *Year Book* should supply a neatly coherent thesis in answer to the questions which it raises. Rather it furnishes a mass of material which may help the reader to work out his own answers. Among forty-three contributors, from many countries of the world, there are bound to be very different points of view. And it is impossible to define the book's terms of reference very precisely; "philosophy" means anything from a strong conviction to a carefully thought-out system of thought about the nature of man and the meaning of life (Dr Kingsley Price, in the last chapter of the book, uses the phrase: "an entire panoply of doctrines"), and "education" means anything from a particular institution or practice to theories of behaviour and of the proper training of the young.

The problems with which the book deals are, in fact, very complex and puzzling. It is as well that the Editors should remind us, for example, that

is equally possible to see French education as the result of teaching
Cartesian philosophy or to see Cartesian philosophy as a natural product
of the French genius. And it is salutary to be reminded of the paradox that
two nations as deeply opposed politically and ideologically as the U.S.A.
and the U.S.S.R. should be establishing educational institutions which
have much in common.

The book is planned in six sections. Section I, *The Great Traditions*,
surveys some of the basic philosophical assumptions that lie behind educa-
tion by distinguishing various cultural areas—the West, India, China, and
the Muslim World. The contributors in each case are asked to concentrate
on three main issues that bear on education—the nature of man and his
educability, the nature of society and man's relation to it, and the nature
of knowledge and how it can be acquired.

Section II, *Determinants of Policy*, deals with the relations between
philosophy and what goes on in the schools. The Editors recognise that
the aim of this section has not been fully realised. This is hardly surprising,
since the problem is a very complex one, involving the interaction between
educational development and socio-economico-political conditions. There
is a valuable chapter on Nationalism by Dr I. Kandel.

In Section III *National Systems* are examined from the point of view
of the ways in which national educational policies become effective.
Sometimes a strong central government creates an educational system as
an instrument of policy; sometimes an existing institution with high
prestige and embodying a philosophy (such as the English Public School)
influences the rest of the educational system. The general consensus of
opinion of the contributors to this section is that the pattern of national
systems of education is determined by institutions rather than by any
explicit philosophy.

The general conclusion of Section III leads naturally to a survey of
Historical Examples in Section IV. Here the historical background of
existing systems is examined in a series of case-studies illustrating the ways
in which a philosophy has become effective in educational practice. A
number of the examples are the outcome of religious movements (Jesuit,
Quaker, Jewish, Islamic).

In Section V, *Experimental Institutions*, some modern educational
experiments are described, including the Montessori system, the Outward
Bound schools, and the Rudolf Steiner schools. These very varied experi-
ments have a common purpose in the full development of individual
children in a social setting.

The sixth and last section consists of a group of essays on *The Teaching
of Philosophy of Education*—an activity which, it must be admitted, has
nowhere as yet been very successfully accomplished. There is a useful
chapter by Professor Arnaud Reid of the University of London, and a
general review of the volume has been written by Dr Kingsley Price of
John Hopkins University.

M. V. C. JEFFREYS

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CONTENTS

EDITORIAL

"IF we want them to do what they want to do, we make sure that they want to do what we want them to do." So, recently, an American headmaster. His British counterpart might express the matter with less subtlety, but the sentiments would probably be the same. Head teachers who, some years ago, were pleased to have their schools known as "free activity" schools now recoil from the label as from an insult; lecturers who preached "free activity" methods now omit the words from their vocabulary. Undoubtedly the fashion has changed.

The heyday of freedom from restraint, and of activity which required no justification beyond itself, came during the inter-war years. That period may be variously regarded as the last age of freedom or as the last age of privilege—the last age in which part of our population could enjoy a philosophy that preached the virtues of unrestricted self-expression (however this might be limited in practice).

In the post-war years it has become generally recognised that freedom from restraint may be a quite emaciated kind of freedom. There has been emphasis upon the need, in defining the word "freedom", for a point of reference beyond contemporary circumstance; upon the responsibilities which are necessarily tied to it; and upon directed activity as a means to an end. The concept of freedom has, in effect, been given a new dimension; and it is now accepted that freedom is to be found not in the pursuit of some hypothetical "natural" personality, which must at all costs be allowed to develop without inhibitions, but, paradoxically, in the acceptance of some authority beyond ourselves.

The difficulty is to determine *what* authority. In his search for something outside himself a man may place his faith—for that, it is held, is what he *must* do—in the state, in the inevitability of some historical process, in science, in "culture", or in God. It is only too apparent that the traditional repositories of faith are no longer generally accepted and that in many parts of the world new ones have been devised. This is why the fundamental question concerning our aims has been forcibly thrust upon our attention of recent years

and why, in this issue, there appear four articles concerned with matters such as these.

As Professor Lester Smith shows, the meaning of "freedom" must be re-interpreted in every generation, so that two of our own problems are to reconcile freedom with planning and, having achieved freedom from want, to teach freedom to enjoy the culture which not many years ago was the privilege of the few. The assumption is that, lacking a common faith in religion, we must have resort to an affirmation of cultural values which will serve as a basis for moral judgments.

Mr Goldman describes the attempt to teach freedom through responsibility in the Outward Bound schools. These schools do, perhaps, typify the spirit of the post-war world in the way that the free activity schools typified the 1918-1939 period. Certainly their aims and methods have been much discussed recently and, whilst they will not meet with universal approval, they are an attempt to provide a specific answer to our general problem.

Mr Bantock, writing about freedom inside the classroom, sees the development of free activity as following upon the rise of the scientific spirit with its destruction of recognised authorities. From the same origin he traces the interest in child development, with its unfortunate and illogical insistence that, if left without adult interference, the child will want to do what he ought to do. He reminds us that the child's environment is inevitably arranged by the adult, that there is no "natural" mode of development (in the sense in which the word is commonly understood), and that we should not confuse the psychology with the principles of education by assuming any *necessary* connexion between what a child *does* and what he *ought to do.*

But it would be as great a mistake not to recognise the good that has come from the tradition generally associated with the name of Rousseau. The attempt to study children objectively, to understand their needs, abilities and norms of growth—this has helped us to an appreciation of individual differences, more appropriate methods of grading school work, a happier classroom atmosphere, and ultimately —let it be admitted—a higher level of attainment throughout the population.

The reaction against free discipline and free activity is not a return to the old formalism: it is, rather, a move towards activity which is subtly but closely directed. Recent research in child development, much of it inspired by the work of Piaget, gives firm support

to the use of directed activity with young children. Researches of this nature will be reported in our coming issues. Of particular interest at the present time is work on the teaching of number; and on this topic we intend to publish articles which have been provoked by the recent contribution of Mr Flavell.

As free activity is giving way to directed activity, so confidence in a "natural" and universal mode of development is being replaced by the belief that every society, and indeed every social group, has a typical pattern according to which its members grow, and in doing so develop "intelligence". This has an immediate bearing upon our theories regarding the development and measurement of intelligence. Perhaps many common assumptions concerning the nature of intelligence should be reconsidered; we may even ask whether the term "intelligence" is any longer useful when applied to tests. Part of our next issue will be concerned with this question.

Other articles in our forthcoming issues will deal with the changes now taking place in secondary education. Secondary schools are developing almost as rapidly in variety as in number, partly owing to the widespread disquiet with selection at 11 + (Dr Bene's article in this issue gives further information about the relationship between family size and "success" at 11 + for different social classes). Amongst them the grammar schools are as virile as ever they have been and articles in our secondary school series will indicate how they are responding to the demands of an ever more technical—and, some would add, philistine—society.

H. J. HALLWORTH

FINDING MORE TIME
FOR THE STUDY OF FREEDOM

by W. O. LESTER SMITH

Formerly Professor of the Sociology of Education,
University of London

I

How difficult it is to resist the temptation of overloading the time-table! There has to be some ruthless rejection of important studies to avoid what Sir Richard Livingstone has stigmatised as "the bursting portmanteau". The target of his criticism was the grammar school, but the courses planned for prospective teachers are often criticised in much the same way. Some overcrowding in these courses is inevitable, for both in university education departments and in training colleges the time available is lamentably short, while the scope of what a teacher needs to know gets wider as the conception of his task expands.

The authors of the McNair Report were very conscious of the dilemma that confronts those who plan these courses. They recognised, on the one hand, the great responsibilities of teachers in present-day society. "Every teacher," they observe, "in however humble a capacity he or she may be serving, is directly and vocationally involved in moulding the shape of things to come" (1). And they add that they stress this truism "because there are those who seem lazily to think that growth and development inevitably proceed in desirable directions". But having thus remarked on the influence of teachers upon the future of society, they are emphatic in resisting a congested course of study. "The course", they maintain, "must be planned and conducted in such a way that at the end of it the student realises that, far from his education being complete, he is about to enter upon its most significant stage; the stage which depends upon his own initiative and effort" (2).

When making their recommendation for a three-year training college course, now about to be implemented, the McNair Committee are more definite still in their disapproval of a crowded curriculum. "Our intention", they say, "in recommending an extension

of the course from two to three years would be frustrated if the longer period were used mainly as an excuse for a general increase in the number of subjects which students were called upon to study" (3). In its recent excellent pamphlet on the three-year course the Ministry of Education takes much the same line. "The training college curriculum", it remarks, "has always been overcrowded. . . . It is hoped that the three-year course will not be used as an opportunity to add courses on more and more topics to the college curriculum" (4). And in its concluding paragraph it observes: "The factor of outstanding importance would seem to be the greatly increased time that could be made available, not for lectures, but for the students' own thinking and reading, writing and discussion" (5).

II

If, as the McNair Committee believed, teachers have a considerable influence on the shape of things to come—and few will deny this—it is clearly essential that their preparation for their vocation should attempt to give them a sensitive awareness of the major problems of our time. Of these freedom is of supreme importance; and although the student will learn much about its practice in the community life of university or college, as he will have done at school, this is not enough for intelligent leadership or as a background for his constructive work as a teacher and as a transmitter of ideals. He will need to know a good deal about how our precious heritage of liberty has been won for us; he must have thought about principles of freedom and their application in contemporary society; and he will, when he becomes a teacher, need to have done some purposeful reflection about problems of freedom and authority in school and classroom. Above all, he will need to be able to discriminate and have a sound judgment about the kinds of freedom he should encourage his pupils to like and dislike.

The course of studies in university education departments and training colleges does at present usually cover much of this ground. Through his study of the history of education, the student becomes familiar with the story of the struggle for freedom and the growth of tolerance. And in learning about educational principles and methods, he has constantly to reflect upon the meaning of freedom, and the frontiers of freedom and authority. But, while recognising fully the value of what is now achieved, many, one feels sure, would agree that, if there is more time for reading, thinking, and discussion, this complex issue of freedom has strong claims for consideration.

We must assume, however, that if extra time becomes available in training colleges for the study of freedom it will not, in view of competing demands, be enough to enable the student to range at large over this wide field. If he roams indiscriminately he can all too easily find himself in wandering mazes lost and waste precious hours. It will be necessary to select carefully what to study, and in doing this not to overlook the benefit and intellectual satisfaction to be derived from examining one aspect thoroughly. There will be wide differences of opinion about an appropriate selection, and much will depend on the student's interests and capacity.

III

There is much to be said for making relevance the criterion for selection, choosing for study problems of freedom that the student is likely to meet when he becomes a teacher, and singling out for closer examination some one problem or a situation that illustrates a problem. There is good precedent for thinking about freedom in this practical way. That noble manifesto of freedom, Milton's *Areopagitica*, has as its sub-title *Speech for the Liberty of Unlicensed Printing* and deals with a problem of his revolutionary time, the censorship of the Press under Presbyterian rule. Of the five chapters of J. S. Mill's great essay *On Liberty*, the last with the significant title, *Applications*, is by no means the least illuminating. There, it will be remembered, he applies his principles to current questions; and it is in this chapter that he states the case for compulsory education and in his clear, logical way seeks to destroy the view, then prevalent, that parents are entitled to exercise "absolute and exclusive control" over their children. This was not only relevant but also most effective, for it prepared the way for the legislation of 1870 and 1880, the foundation of our national system of education.

No one in this country of our time has given more thought to the principles of freedom than Professor John McMurray, and he too is on the side of relevance. Emphasising the danger of discussing freedom in terms "too abstract and ideal", he concludes a chapter on the relativity of freedom with these significant words: "In the history of social development circumstances change and the problems which they set change with them. Any substantial alteration in the social conditions of human life resets the problem of freedom and demands a new effort and a new solution. So it comes about that often men seek to escape from solving the problem of freedom which

is their own by spending their efforts in the defence of the freedom they have as a gift from past generations. The freedom of to-day must be fought for and won in the conflicts of the present . . ." (6).

IV

What are "the conflicts of the present" about freedom that most concern those who teach in this country? There will be many different answers to this question. Some will range widely, their consciences stirred and their sympathies aroused by assaults upon educational freedom in many lands. Some will think of racial antagonisms, some of religious persecution; and some of the use of education for political ends. If you take a world view, you can, alas, make a formidable catalogue of serious encroachments upon educational freedom. But on the home front the dangers are, happily, not of a virulent kind. Education in Britain to-day is not a major battleground, nor is the society in which our children grow up subject to incursions and alarms. It is, however much some may grumble about the growth of government, unmistakably a free country.

Our problem is more one of understanding freedom, interpreting it intelligently, and using it wisely. It is from that standpoint and not for purposes of combat or crusade that it is important that the attention of prospective teachers in this country should be drawn to problems of freedom. And it is as potential exponents and interpreters of freedom that at college they should be stimulated to think about freedom in ways that will encourage them to continue to do so throughout their career. For they will constantly be confronted with issues of freedom both in their professional capacity and as leaders in their neighbourhoods.

Planning with a view to a better way of life will be a frequent cause or occasion of such issues, and if time can be found for thought and discussion about planning the student will be better equipped to form a sound opinion on them. He will thereby soon realise that the task of this generation is not just "to preserve freedom"—a favourite phrase—but also to translate it in terms of a new and more democratic way of life. The younger generation sometimes finds it difficult to appreciate how recently we accepted the idea of a planned society. It was during the last World War that we begun to get used to it. "Planning has come to stay and, indeed, to increase," said A. D. Lindsay in a war-time broadcast talk. "It needs skill, and

knowledge and rare qualities. Can we have expert planning and keep democratic? That largely depends, I believe, on whether a democracy can produce real leaders who can use the new knowledge and techniques, and not be mastered by them" (7).

The 1944 Education Act was the first great piece of social legislation to provide for planning on a large and comprehensive scale; and its implementation has furnished, and will continue to furnish, illustrations in every locality of planning in which issues of freedom arise. Case study of a particular planning project—e.g. one involving the closure or amalgamation of schools, especially if it has evoked controversy—can prove illuminating, and show the degree of respect with which individuals involved have been treated and also shed light on the question whether the project has added to the sum of human liberty. It will often be found on investigation that, though much criticised, the various decisions taken to achieve a planning operation have been the subject of many consultations with the parties concerned and of prolonged and sympathetic consideration of conflicting points of view.

When he reflects about planning the student will realise that the administrator is not the only planner in the educational world. Teachers, and especially head teachers, do a good deal of planning. In education, however, the planning addict, whether administrator or teacher, is a rare phenomenon; he is usually human and considerate. But this is nowhere a perfect world, and power even in small doses can prove intoxicating. "I venture to suggest that those who regard administration and planning as an end in itself do greatly err", Lord Justice Denning once observed. "If they disregard the spirit of man, if they disregard his individual freedom and his place in his own local community they will lead straight to a totalitarian régime, where the State is everything and the individual nothing. They will do this quite unconsciously in the interests of efficiency, but they will do it all the same" (8).

One great issue of freedom, which all teachers have to face, is that of freedom and authority in school and classroom. It is so thoroughly considered to-day in university departments of education and training colleges that it would be superfluous and inappropriate to make a brief comment on it here. But it should be noted that it provides the best of all opportunities of drawing attention to the inadequacies of a superficial study of freedom, and affords an admirable illustration of the necessity of thinking diligently about the meaning of freedom before you can begin to interpret it wisely.

V

But teachers are by no means vocationally concerned only with issues of freedom within the school. It matters much to education how freedom is interpreted in the home and by society. The Welfare State has brought several necessary freedoms not hitherto enjoyed by many, especially emancipation from the havoc wrought in the home by the four Giants that the Beveridge Report attacked so effectively—idleness, squalor, disease and want. The shorter working week has provided more free time, and labour-saving devices have brought relief from the tyrannies of monotony and drudgery. What use will the new society make of these various freedoms: is it, in Disraeli's phrase, going to mistake comfort for civilisation, and is it going to allow mass entertainment to be the basis of its culture? Or is freedom *from* the grievous handicaps of the past going to be translated into freedom *to* develop a culture at least as fine as that enjoyed by the privileged few in less democratic days? Much will depend on those who, as teachers, exert an influence on the shape of things to come. Matthew Arnold showed a prophetic understanding of this great problem of our time when he wrote: "Many are to be made partakers in well-being, true; but the ideal of well-being is not to be, on that account, lowered and coarsened."

This reminds us how close is the relationship between freedom and purpose; freedom is not an end, but a means. It is important that, when purpose is being considered during the course of study, this relationship should be stressed. For freedom without purpose becomes a kind of nihilism; it is purpose that makes freedom valuable, whether as a characteristic of the classroom or as an attribute of society. There is no gift that a well-directed course of study can give a student, as a preparation for his vocation, to equal that of a sound judgment about the aims he should pursue.

But it is not only the student as an individual who benefits. There is a commerce of thought; and if the attention of teachers is focused on issues of freedom and purpose that concern education in our time, this should lead in a healthy, democratic way to the growth of a collective opinion. There are many who feel the need of an accepted body of convictions as a stabilising influence, and no one has pleaded more earnestly for something of this kind as a foundation of education than Sir Eric James, who concludes a widely read chapter on "Liberty and Education" as follows: "A determination to maintain that not all views are equally true, nor all pursuits equally valuable for the life

of the mind, will stabilise the basis of moral judgments, even if their religious foundation is no longer a universally accepted authority. An emphasis on the value of the educated judgment, as opposed to that acceptance of personal opinion that is one of the dangers of democracy, would have its effect upon the whole of life, and not least in the sphere of morals. It is the function of the schools, of the inspectorate, and most of all, of the universities to make such an affirmation. Upon them rests the ultimate responsibility for maintaining the standards of culture through a time of immense social change, of ensuring that, as more men and women come into their inheritance of that culture, it has not been mortgaged and debased" (9).

REFERENCES

1. *Teachers and Youth Leaders*, H.M.S.O., 1944, p. 28.
2. ibid, p. 64.
3. ibid, p. 65.
4. *The Training of Teachers: Suggestions for a Three-Year Training College Course*, H.M.S.O., 1957, p. 2.
5. ibid, p. 23.
6. McMurray, J., *Conditions of Freedom*, London, Faber, 1950, p. 30.
7. Lindsay, A. D., *Selected Addresses*, College Bookshop, Keele, N. Staffordshire, 1957, p. 30.
8. Address on "The Place of Local Government in Preserving the Freedom of the Individual", Conference of Association of Municipal Corporations, 1951.
9. James, E., *An Essay on the Content of Education*, London, Harrap, 1949, p. 125.

FREEDOM IN EDUCATION

by G. H. BANTOCK

Reader in Education, University of Leicester

THERE are various ways in which it is possible to discuss the subject of freedom in education. I could, for instance, examine the freedom enjoyed by individual headmasters and staffs of schools, under the local authority system, to run their schools as they like, to frame their own syllabuses, etc., in contrast to the restrictive systems which are encountered in certain continental countries; or I could write about the autonomy of the individual teacher in the classroom *vis-à-vis* the headmaster and the inspectorate. But in fact I want to restrict my comments to the sort of freedom which has arisen in the classroom as between the children and the teacher, the sort of freedom which has, for instance, affected in some cases what is taught and has certainly affected the way in which the teaching is carried on. At the same time, it is important to realise that the sort of freedom I shall be writing about has only really affected a quite small proportion of our local authority schools; those which have been most affected being the infant schools, and those which have been least, the grammar schools.

First of all, I want to consider, briefly, and I am afraid, inadequately, one of the historical influences which has led to this new "freedom" in the classroom. In doing so I shall be considering a shift in our attitude to knowledge which has brought about both a change in the sorts of things which are to-day studied in school and, even more interestingly, has profoundly altered our attitude towards method, the way in which learning is to be encouraged. Indeed, one of the classic expressions of the new spirit is itself a *Discourse on the Method of rightly conducting the Reason and seeking Truth in the Sciences.*

For the great change in the attitude to knowledge which we associate with the names of Descartes, Bacon and Locke, was in part responsible for the development of modern ideas in education. The main tradition of medieval learning regarded knowledge as something to be deduced from certain *a priori* principles and axioms,

principles derived from Aristotle or the Bible or, sometimes, the Christian Fathers. It was, that is to say, essentially authoritarian. Even a Renaissance thinker like Erasmus could assert: ". . . within these two literatures [those of Latin and Greek] is contained all the knowledge which we recognise as of vital importance to mankind." At the beginning of the seventeenth century Bacon vehemently rejected the "degenerate learning" of the schoolmen, whose wits, "being shut up in the cells of a few authors (chiefly Aristotle their dictator) . . . did out of no great quantity of matter and infinite agitation of wit spin out unto us those laborious webs of learning which are extant in their books". Moreover, Descartes wrote in French "in preference to Latin which is that of my preceptors . . . because I expect that those who make use of their unprejudiced reason will be better judges of my opinions than those who give heed to the writings of the ancients only". "Unprejudiced reason" . . . the "prejudices", that is to say, the unwarranted assumptions, which in Descartes' view inhibited all advance of true knowledge, sprang from the study of false philosophies and ready-made opinions imbibed from childhood. Error, then, was often the offspring of a false tradition; there is a powerful anti-historical element in Cartesian thought.

The "new" thinkers of the seventeenth century, of course, had their own "authorities". Descartes advocated mathematics as the key to knowledge. The development of mathematical procedures was, in fact, Descartes' legacy to the progress of the new scientific method; for it is the new scientific learning which replaced the old authoritarian *a priori* knowledge of former times. The contribution of Bacon and of Locke—particularly Locke—lay in their emphasis on the importance of sense experience:

Whence (asks Locke) comes (the mind) by that vast store which the busy and boundless fancy of man has painted on it with an almost endless variety? Whence has it all the *materials* of reason and knowledge? To this I answer in one word, from *EXPERIENCE*. In that all our knowledge is founded; and from that it ultimately derives itself.

And the two sources of experience were "SENSATION and REFLECTION". By "sensation" Locke, of course, meant sense experience.

Now, with the mention of sense experience, something of the purpose of this historical introduction will, I hope, become evident. For, in the development of "progressive" ideas in education, of those ideas, that is to say, which have played so significant a part in "freeing" the child, the importance of the role assumed by sense

experience can hardly be over-stressed. From the seventeenth century onwards, through Rousseau, Pestalozzi, and Froebel, down to our own day of John Dewey, Susan Isaacs and of the practice of the modern infant school, the importance of direct, first-hand experience through the senses has been stressed over and over again as the proper means through which educational advance can be achieved. Here, for instance, are two extracts, one from Rousseau and one from Susan Isaacs: it is not, at first glance, easy to tell which is which:

> It is by walking and stretching and touching that the words "far" and "near", "large" and "small" gain their meaning. . . . To find out for oneself, to watch and repeat and watch again, for example, the way water makes a channel for itself through sand, the way one's toy boat turns over when caught in the swift current of the stream, or the way one moves faster or slower if one has a sliding board inclined more steeply or less—these are the experiences which give reality to the later study of "physics" and "mechanics" in which we shall want our children to be interested and to do well.

> He wants to touch and handle everything; do not check these movements which teach him invaluable lessons. Thus he learns to perceive the heat, cold, hardness, softness, weight, or lightness of bodies, to judge their size and shape and all their physical properties, by looking, feeling, listening, and, above all, by comparing sight and touch, by judging with the eye what sensation they would cause to his hand.

The sort of approach which these two educationists, writing at very different periods, are advocating is, in essence, a scientific one. Long before science was in any organised way being taught in our schools—though eighteenth-century "progressive" thinkers like Edgeworth and David Williams were in fact introducing their pupils to simple physical, mechanical and chemical experiments—the *approach* to learning advocated by "progressives" was basically scientific. The changed attitude to knowledge, then, which stemmed from those seventeenth-century thinkers I have mentioned, has involved a profound difference in the way in which, if we are progressively minded, we ask children to approach the world. For instance, it is, I think, too little recognised that the type of education which, basically, Rousseau wishes Emile to have is a scientific one (1); he wishes to encourage the child Emile to look at the world in a certain sort of way; he wants him, that is, to correlate phenomena in a manner characteristic of, at least, the earlier type of scientist. John Dewey, also, one of our most educationally important influences today, is deeply imbued with the spirit of the scientist. His educational ideas are very closely associated with the philosophy of pragmatism and such a philosophy springs from a conception of scientific method.

The central tenet of this philosophy, in Dewey's own words, is that the "hypothesis [note the scientific terminology] that works is the true one". And Dewey looks upon human experience as providing data for modification and control: "It is", he states, "material to act upon so as to transform it into new objects which better answer our needs." Experience, then, is something which is to be in a continual state of reconstruction—Dewey denies the presence of any absolute values. As an admirer of Francis Bacon, he also urges that knowledge is power; and he sternly repudiates the "authority", as we might call it, of the past.

Life, then, to Dewey presents problems which we recognise; on the data presented we build up a hypothesis as to the correct mode of action; and we test that hypothesis in action. If our problem is solved, we have discovered truth; if not, we must reframe our hypothesis. Value lies in consequences.

Dewey's world, like that of the earlier scientist, is very much that of practical activity. He believes that "scientific inquiry always starts from things of the environment experienced in our everyday life, with things we see, handle, use, enjoy and suffer from". In the same way, Emile was to learn facts which "are within his reach by experiment, and [to] discover the rest by induction".

Thus the child was—and is—to be placed in the same sort of position as the early scientist. Such a view of the process of education involves a view which is essentially anti-dogmatic even if fragmentary. Implicit is an element of freedom of choice, of personal discovery; it is not knowledge accepted on authority but through individual effort. Even if one admits that the view of scientific method is an out-of-date one, recalling the romantic efforts of the earliest investigators rather than the disciplined and restricted attention of the modern scientist, building on the efforts of his predecessors, it is still worth recalling that scientific knowledge at any level retains an element of the hypothetical and the "democratic"; hypothetical because in the last resort all science is based on hypotheses, and "democratic" in the sense that all scientific knowledge is publicly inspectable. It does not, that is to say, depend on the *a priori*, the axiomatic—except in the most general sense, that the world constitutes an order, for instance—or on the inborn innate understanding. Hence, the scientific revolution has done as much as anything to free the child from the tyranny of the pre-accepted and the authoritatively laid down. The cry of "experience"—witness the famous words of the Primary School report:

. . . the curriculum is to be thought of in terms of activity and experience rather than of knowledge to be acquired and facts to be stored

—stems from Locke's denial of innate ideas and his stress on EXPERIENCE—SENSATION and REFLECTION.

For in the providing of this experience—I am quoting again from Susan Isaacs:

> The physical setting and the educational technique alike were designed to call out the children's activity, rather than the teacher's. The function of the teachers was to stand by, ready to make suggestions when these seemed appropriate, but mainly to follow the spontaneous interests of the children, and to foster their inquiries, experiments, and discoveries, in whatever direction these might take.

(Note the scientific use of the word "experiment"—the children experiment with their environment while, to some extent at least, the teachers experiment with the children.) Hence it can be urged that the scientific revolution, which originally stems from the thirteenth-century work of Roger Bacon and Grosseteste, but which only becomes the predominating influence and tradition in the seventeenth century, has done as much as anything to create the psychological and epistemological conditions within which "freedom" in general—and "freedom in education" in particular—comes to be felt as a problem. Of course, there were other powerful influences at work —for example the development of Protestantism; the relationship with God becomes a personal one instead of needing the interposition of a Church. Furthermore there has been the breakdown of an economic system based on hierarchy and status, and the development of capitalistic enterprise based on the "freedom of the market", culminating in the *laissez-faire* policy of nineteenth-century liberalism. There has been the social and political development of democracy, particularly of the egalitarian streak which is to-day crying out for the reorganisation of the secondary schools; and anyone who is acquainted with the work of John Dewey is not likely to make the mistake of underestimating the part played by such socio-political ideas even in the limited sphere of the classroom. The project method for instance, is not only an educational technique; it is a social one as well. If, then, I have concentrated on the part played by science, it is because from an educational standpoint a shift in ideas about knowledge seems to be more immediately relevant. Furthermore, the interest in the laws of nature which scientific investigation stimulated led to the formulation of a conception of freedom in education about which I shall have a good deal to say shortly; it was the view

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that freedom results from conformity with the natural law of development inherent in the growth of the individual. At the same time, the development of science represents only one strand, though a very important one, in that texture of events which has produced the modern problem of freedom. I adduce it because I agree with Erich Fromm, when, in his *Fear of Freedom*, he urges that "any understanding of freedom in modern society must start with that period in which the foundations of modern culture were laid". A major characteristic of that period lay in the development of the scientific attitude.

But now I want to go on to point to one of our basic dilemmas in considering the problem of "freedom", in education as in politics or elsewhere. In the last quotation which I made from Susan Isaacs she refers to the function of the teachers as being "mainly to follow the spontaneous interests of the children". The concern for spontaneity, which five to ten years ago attracted a good deal of attention in educational circles, springs from a romantic, individualistic view of the personality. Non-interference by the teacher is justified on the grounds that the child is a being with a separate entity, an inner life essentially different from that of the adult, a view which became widely advertised about the time of Rousseau: "Childhood has its own ways of seeing, thinking and feeling; nothing is more foolish than to try and substitute our ways." Combine this with the other Rousseauesque dictum: "Let us lay it down as an incontrovertible rule that the first impulses of nature are always right", and something of the ideological basis of the belief in "spontaneity" is revealed. Implicit, then, in this emphasis on the virtues of spontaneity is a conception of freedom which regards freedom negatively, i.e. as an absence of restraint. And one of the important ways in which children have achieved freedom in our time lies precisely in this lifting of many of the restraints of adult authority—restraints which in the field of education can be described as both academic and moral. Academically it is possible to see the results of this in Susan Isaac's view of her aims in the passage I have just quoted; and, I might add, in the notion of choice of activities, a choice which often faces the child in the significantly named though now slightly démodé "Free Activity" school. A reluctance to embark on moral judgments sprang from a belief in the dangers of an over-stimulation of the super-ego, and can again be noted in Susan Isaacs' comment that at her school she "never used general categories such as 'naughty', 'good' or 'horrid'".

Adults then, parents and teachers, have abdicated a good deal of

the sort of authority, and abandoned many of the restraints which not so long ago were normally accepted as part of the usual pattern of bringing up children. By such abandonment of restraints it is thought that the children will be helped to develop both personally and academically. They will be helped personally because their "rights" as self-subsistent entities are recognised; they are accorded the right to develop in accordance with their own individual natures and not in accordance with a pattern of behaviour laid down from above; and they are helped academically because their own individual interests and aptitudes are recognised as important factors in any process of learning they are asked to undergo.

Yet, if we look a little more carefully at the quotation from Rousseau I mentioned a moment ago, we shall note that, despite all superficial appearances to the contrary, a constraint is mentioned: " . . . the first impulses of nature are always right." At first sight this would seem to allow any and every impulse that the child would wish to indulge in. It is only when we read the work as a whole that the profound significance of that saving phrase "of nature" can be realised. Implicit, indeed, in all Rousseau's advocacy of "freedom" for the child is the appeal to a *law* of development in some sense implicit in the functioning of the *natural* world. Rousseau, indeed, in certain of his works, is concerned to shake off those shackles which he thinks restrict man's actions and which spring from the constraint imposed by social and political institutions, social custom and the like. But he invokes another "authority", as it were, when he appeals to "nature" (a highly complex and ambiguous concept, I would note in passing) as providing the necessary criteria for correct upbringing (2).

Rousseau, then, conceived of the freedom of the child as springing from obedience to the laws of nature, for that is what, in effect, his appeal to the "first impulses of nature" amounts to. And certainly one of the things that Rousseau and others, such as Froebel, meant by this was that there was implicit in the child a propensity for development, for growth, which if not interfered with by human beings, would, "spontaneously", in accordance with "natural law", promote right development, the flowering of the "real self". For instance, on one occasion Rousseau says:

Oh, man! live your own life and you will no longer be wretched. Keep to your appointed place in the order of nature and nothing can tear you from it. Do not kick against the stern law of necessity. . . . Your freedom and your power extend as far and no farther than your natural strength.

And again, Rousseau speaks of the requirements for "natural

growth" in these terms: "The mind should be left undisturbed [i.e. by human interference] till its faculties have developed." The implication is that the faculties develop spontaneously without stimulation from the social environment.

Now the view of nature implicit in these quotations equates the development of man with that of other natural phenomena such as animals and plants. It is not that Rousseau does not recognise certain differences between man and the animals; it is simply that just as there is a certain way in which animals develop untrammelled by human interference, so there is a similar way, if only we could see it, in which human beings develop. Thus, in inveighing against the custom of swaddling children, Rousseau appeals to the fact that "we have not yet decided to swaddle our kittens and puppies; are they any the worse from this neglect?" It is for this reason that the "plant metaphor" is so popular with thinkers of this type; by the "plant metaphor" I mean that metaphor which is constantly being used to imply an analogy between the growth of children and the growth of a plant: "We give room and time to young plants and animals, well knowing that then they will develop according to the laws inherent in them," says Froebel, and proceeds to lament that we do not treat children in the same way: "In dealing with objects of nature we often follow the right road, but go astray when we deal with men." It is this notion of the need to allow the "law inherent" in children adequate opportunity to develop that leads Froebel to say (and his words have in slightly different terminology been many times echoed in recent years):

... the fundamental principles of education, instruction, and teaching, should be passive and protective, not directive and interfering.

The policy of not interfering with the child's "spontaneity", with his interests and desires, permits him to develop "naturally", then, in accordance with some principle of growth which will bring him in harmony with the laws of development inherent in the working-out of the universe (3).

There is, however, implicit in such an appeal to natural law a serious error, an error the nature of which invalidates all the arguments for freedom based on it. This error has been so admirably exposed by Professor C. D. Hardie in his invaluable little *Truth and Fallacy in Educational Theory* that I will content myself with quoting what he has to say about it:

There is no doubt that there is some analogy between the laws governing

the physical development of the child and the laws governing the development of a plant, and hence there is some justification for the view if applied to physical education. But the educationists who hold this view are not generally very much concerned with physical education, and the view is certainly false if applied to mental education. For some of the laws that govern the mental changes which take place in a child are the laws of learning. Now although psychologists are not all agreed about the correct explanation of the various laws of learning, there is general agreement that there are three main types of learning: (a) the process of "conditioning", (b) learning by trial and error, and (c) learning by what the Gestalt psychologists have called "Insight". But the laws which have been found to hold for these three processes have no analogy at all with the laws which govern the interaction between a seed and its environment. Hence our original proposition, "a child's education ought to be such that it is free to develop according to the laws of its own nature", if interpreted in this way, is false; and therefore there is no justification for the view that a child should be educated "according to Nature" with this interpretation of such a phrase.

At the same time, it must be admitted that these analogies drawn from "nature" have not been without their uses. They have, for instance, served to draw attention to the fact that, as in physical growth so in mental growth children do go, roughly speaking, through certain stages of development, even if at slightly different times and in slightly different ways from child to child; moreover, they do possess an *inner* potentiality, even if it is not one strictly analogous to that of the germ of a seed.

I do not, then, conceive the true freedom of the child as springing from any theory of "natural" development, and therefore I do not accept the implication that all we need to do to achieve "true" education is simply and exclusively to throw off those repressive interferences with the "natural" development of the child's inner resources. At the same time, I would admit that freedom from certain specific restraints, definable in relation to individual children in particular terms, is probably a necessary precursor to the attainment of what I have in mind when I speak of "true" freedom. For instance, the child who is going to develop a talent for painting or sculpture work probably needs to be free from the constant injunction from his mother to keep his hands clean. And so on. In other words, a certain element of "freedom from" or "negative freedom" is a necessary precursor to any kind of positive achievement; though at the same time it is vitally important that the particular freedoms from restraint should not be conceived in general or conventional terms, but should be examined in specific cases in relation to particular personalities; it is as well to bear in mind that a restrictive system

and the tension that it can create may involve a not unimportant element in achievement. The removal of all difficulties and stumbling blocks may not necessarily be releasing, paradoxical though this may seem.

Now I want to go on to consider what I mean when I write, as I did in the previous paragraph, of "true" freedom. I have tried to point out that freedom from restraint is not a necessary *and* sufficient condition of "true" freedom, though I have admitted that freedom from certain restraints may be a necessary precursor. And, in fact, though freedom is often loosely conceived of in this way, I know of very few teachers who, although they may well make a great point of stressing the need for freedom from human constraints and unnecessary interference on the part of the adult, in fact follow their own injunctions on the matter to their logical conclusion. If we may take Rousseau as symptomatic of the vast majority of teachers of his way of thinking, we note that despite his belief that the source of all errors and evil springs from the grown-up world (children "cannot possibly become rebellious, spiteful, untruthful, or greedy, unless the seeds of these vices are sown in their hearts"), in actual fact he time and time again urges the need for human intervention. For instance:

While the child is still unconscious there is time to prepare his surroundings, so that nothing shall strike his eye but what is fit for his sight.

And again: "His sense experiences are the raw material of thought; they should therefore be presented to him *in fitting order*" (4). All this quite obviously implies a carefully thought out human intervention, though of a rather more indirect kind than that normal in the schools of his own day, or in many of those of ours, for that matter. About the fact of this intervention, however, there is no possible room for doubt.

Thus when Rousseau asserts: "When he only does what he wants, he will soon only do what he ought," he himself recognises the essential ambiguity of this notion of doing "what he wants" by urging in the previous paragraph:

No doubt he ought only to do what he wants, but he ought to want to do nothing but what you want him to do. He should never take a step you have not foreseen, nor utter a word you could not foretell.

For the moment, however, I want to forget Rousseau, in order to examine his notion of doing what one wants independently of his gloss on the matter. In other words, I propose to examine the pro-

position, "when the child only does what he wants, he will only be doing what he ought". I will omit the word "soon" from Rousseau's exposition, because this only introduces an unnecessary complication into the situation.

Now, although I do not think any teacher has ever held this proposition in its purity (I suppose A. S. Neill gets as near to it as any), there are many who have flirted with the notion, even though they have ultimately withdrawn from the marriage ceremony. For this is the ultimate proposition of freedom from adult restraint. Moreover, it suggests that such "freedom from" has positive results for the child: if you do not interfere he will come to do what he ought to do . . . surely a desirable state of affairs. Why, then, have so many teachers who have had sympathy with the idea of children doing what they want (surely a sign of freedom) never felt able to maintain such a proposition as this in its pure state? If we examine the dilemma involved for anyone who tried to accept it, we shall come to see why freedom from restraint for the child is insufficient, and it will help us to formulate that conception of "true" freedom which I have been promising for so long.

The dilemma is, in fact, a logical one; for there is no logical or necessary connexion between "doing what one wants" and "doing what one ought". If I say that I am doing what I want, that is purely a statement of fact; if I say I am doing what I ought, that involves a moral judgment, which is not reducible to a statement of fact. One can put it another way by saying that, as a matter of common observation, there are many things which we want to do which we know, or at least have a good idea, we ought not to do. (For instance, we sometimes say: "I'd like to murder him", but we know we ought not to do so.) The fallacy is that noted by Hume in the eighteenth century:

In every system of morality which I have hitherto met with I have always remarked that the author proceeds for some time in the ordinary way of reasoning, and establishes the being of a God, or makes observations concerning human affairs; when of a sudden I am surprised to find, that instead of the usual copulations of propositions, *is* and *is not*, I meet with no proposition that is not connected with an *ought*, or an *ought not*. This change is imperceptible; but is, however, of the last consequence. For as this *ought* or *ought not* expresses some new relation or affirmation, it is necessary that it should be observed and explained; and at the same time that a reason should be given for what seems altogether inconceivable, how this new relation can be a deduction from others that are entirely different from it.

My point is that the educational situation is inescapably a moral

one. For it always makes sense to ask not only, "are these children doing what they want to do?", but also to ask, "are these children doing what they ought to be doing?" Or again, "is what these children want to be doing what they ought to be doing?" And the mere fact that such a question makes sense in itself is an indication that what they ought to be doing is not reducible simply to what they want to be doing.

It is for reasons of this sort that nearly all philosophers have found in absence of restraint ("doing as one likes" or "wants") an insufficient view of what constitutes human freedom. For instance, doing as one wants may very well lead one to interfere with somebody else's desire to do what he wants, which, in revenge, might lead him to interfere with what one wants to do. Hence the elementary principle that what one wants to do ought not to interfere with the freedom of others springs up, and desire becomes tempered with morality. Hence the development of the view that freedom springs, not from following the unrestraints of impulse and desire, but from allowing one's desires to be sifted by reason; another version of the same basic idea emerges from the belief that freedom springs from the observation of the moral law.

This view of "rational freedom", as Mr Maurice Cranston calls it in his admirable little book, *Freedom: A New Analysis*, is one that springs out of a particular conception of human nature which sees man as very often the scene of a battleground between desire or appetite impelling to action and the rational will exercising a censorship over undesirable impulses. People who hold this view often look upon reason as the supreme characteristic of man; they consider that a life lived in rational terms (which are also in part moral terms) alone lays claims to being a good life.

Now this happens, in essence, to be the notion of human life that I myself hold (5). I do not mean to suggest that the idea of rational control has not been immensely complicated by the psychological discoveries of Freud and others; by the knowledge, in fact, that we are subject to blindnesses and rationalisations which interfere, unless we achieve profound self-knowledge, with the exercise of the rational faculties. What I do mean is that "true" human freedom does not spring from the *unrestrained* indulgence of desires or impulses, though that does not mean that no desire or impulses should be allowed—it all depends on their nature. What the attainment of "true" freedom involves is some measure of restraint; it is, in fact, something to be realised, not something to be accepted.

Now let me translate this into educational terms. I have already suggested that freedom from some restraints (their nature to be defined in particular contexts and cases) may well be a necessary precursor to the attainment of "true" or rational freedom. I will go on to suggest that some of the criteria for learning which are nowadays suggested, such as "enjoyment" and "interest", are not in themselves necessary and sufficient arguments for pursuing any particular line of educational conduct. I am *not* saying that such criteria should be neglected or not taken into account; what I am suggesting is that they are not in themselves sufficient; it is still necessary to ask questions about the value of the exercise to be undertaken. And *one* (though only one) consideration which may well weigh with us in making up our minds about the value of an exercise lies in the fact that this particular exercise or piece of work may enable the child to accomplish or do something he or she has not been able to do before. (I say this is only *one* because, of course, it still makes sense to ask whether what can thus be accomplished is something of value.) The point that I am making is that learning, though it may well involve a form of control over centrifugal impulse, also, and paradoxically, serves to "free" the individual child (I am assuming we have assessed his mental capacity to benefit—but then the vast majority of children are capable of *some* learning). Just, then, as social freedom springs out of the acceptance of the moral law, so the freedom to perform various skills and to make sense of the world around us so that we can move about it in freedom, springs from the acceptance of and submission to the authority inherent in the various bodies of human learning. And it is a fact of human experience that the "subjects" within which in the course of time we learn to move with the greatest assurance and freedom are not necessarily those which we are at first most "interested" by or "enjoy".

My conclusion is, then, that learning (6) matters; and that on its maintenance our "true freedom", at least as it concerns the teacher, rests. That is why I maintain that learning remains the most vital prerogative and task of our schools. If learning can be enjoyed, so much the better; but, in the last resort, it is the learning that matters, not the enjoyment.

REFERENCES

1. Cf. Bantock, G. H., "*Emile* Reconsidered", *British Journal of Educational Studies*, II, 1953.

2. Whereas in education Rousseau is the great advocate of the release and freedom of the child *from* social restraints, in political matters he *is* the great advocate of the freedom of the individual *through* social restraints. Whereas, in education, then, Rousseau is the great progenitor of the movement towards self-expression and individual freedom from social restraints, in politics he is the great progenitor, in the *Social Contract*, of what Professor J. L. Talmon calls "Totalitarian Democracy", i.e. freedom for the individual through the abandonment of all centrifugal and individualistic egotistic desires through permanent submission to the general will.

3. I believe that in the popular use of the word "natural" when referring to children—and indeed in some versions not so popular, for example when some psychologists speak of the "natural phases of development"—it is at least *in part* to some such tradition of thought that the speakers are by implication appealing.

4. These, incidentally, are the forerunners of those modern injunctions to teachers to prepare an environment within which the child shall be stimulated to learn.

5. I am assuming, in saying this, the truth of Professor Ginsberg's dictum: "Reason may recognise the value of spontaneity."

6. The *nature* of the learning is important; but that would provide material for another article. I shall content myself here with saying that what I have in mind is learning that becomes a vital part of the child's own mind, not something passively and mechanically accepted.

ADVENTURE AND RESPONSIBILITY

by RONALD GOLDMAN

Lecturer in Education, Selly Oak Colleges, Birmingham, and temporary Mountain Instructor, Outward Bound Mountain School, Eskdale

Twice in a lifetime we have seen war produce in quite ordinary men and women heroic qualities of courage, endurance and self-sacrifice and make permanently better citizens of those whom it did not destroy. Twice we have had to recognise that our ordinary systems of education had often failed to educe those qualities in peace-time.

G. WINTHROP YOUNG

GEOFFREY WINTHROP YOUNG is a famous mountaineer but he is not inexperienced as a teacher, an H.M.I. and a lecturer in education. It is the purpose of this article to discuss his statement, to outline one educational movement emerging at present in response to the need for adventure in peace-time, and to ask what are the implications of such movements for the schools of to-day.

We would concede, perhaps with some qualifications, that war-time is a period of danger in which opportunities for courage, endurance and self-sacrifice appear to be greater than in peace-time. It is debatable whether the experiences of war make all its survivors better citizens, but Winthrop Young is surely right in suggesting that the demands of war, especially upon the older adolescent, acted as a stimulus and answered a basic need. The term most commonly used to describe the qualities enumerated above is adventure. As the word literally implies, adventure is the willingness to advance, to reach out into the unknown. It is the readiness to take risks, to act without complete certainty but with assurance. We are dealing here not with a simple ingredient of behaviour but with a multi-factor trait composed not only of courage, endurance and self-sacrifice but also of initiative, resourcefulness, teamwork and many other qualities. To train for adventure is to train the disposition, the attitudes, the sentiments and the character of a person. Adventure is fundamentally spontaneity of action, the supreme demonstration of the individual's determination to be an individual in the face of danger. It is, moreover, the factor of danger, the pressure of risk, which

makes adventure so attractive to some and so fearful to others. Some would aver that normal peace-time conditions of life are not dangerous enough, particularly for the adolescent, and it may be necessary to invent situations of danger for the young, to develop in them their capacity for adventure.

We are, in fact, facing to-day a situation quite new to the human race. By technical self-sufficiency we are eliminating at an unprecedented rate many of the dangers which for so long have troubled the lives of the common people. We are safer and more secure from the elements than any civilisation has been before us. Hunger, disease, flood and tempest are minimised, and when they strike are dealt with speedily. But in this process of becoming safer are we not in danger of destroying the fount of initiative and adventure?

It is true that we have increased dangers of another kind by our technical knowledge. One is the danger of war and nuclear destruction, the fear of which is very widespread. In a class of juniors questioned a short time ago, the most frequent answer to the query "What are you most afraid of?" was "War and bombs". This among a generation who have not lived through a war and who can only imagine it as they overhear the frightened references of adult conversation, and as they see its veiled face upon the screen of cinema and television. There are other dangers too, which technology has intensified, witnessed in the enormous number of deaths and injuries on our roads. It can be said with tragic irony that there only two types of pedestrians in our large cities, "the quick and the dead". The tragedy of these dangers is that we seem helpless in the face of them. Danger which appears to be unassailable is not only frightening but inhibitive. As we become more uncertain we become less adventurous.

There is still the realm of exploration and even though the Everests and Arctic areas of the world are ceasing to be unknown, there is still much scope for expeditions giving lively expression to the adventurous spirit of man. And certain occupations on the sea and in the air still contain a margin of necessary risk. Yet these are for the few, we might even say the favoured few. For most of us, adventurous exploration and dangerous occupations are vicariously enjoyed or thankfully escaped.

Related to loss of opportunity for adventure in our society is the problem of physical fitness. Now that machines do more and more for us we are becoming more comfortable and not extended physically as in the past. Efficient and cheap transport cuts down walking,

labour saving devices reduce bodily effort in home, factory and office, and life is becoming less demanding at the purely physical level. This may liberate man from wearisome and irksome labours and free him for higher attainments, but it may also stultify his health and vigour. Now that we understand how dynamically related are the mind and body, we can see that the effects of this may be much more than physical. Living in this kind of society made both safer and less physically demanding, are we civilising ourselves and our children into moral and physical seediness?

When we consider that most of our children are reared in urban areas where the natural hazards of life are diminished, we must begin to wonder at the general effect upon their character. What sort of individuals emerge from this process where the aim of daily life appears to be to live it without a moment of voluntarily accepted risk? G. M. Trevelyan answers:

> Without the instinct for adventure in young men, any civilisation, however enlightened, any state, however well ordered, must wilt and wither. . . .(1)

There is a rightful restlessness in the hearts of young people, girls as well as boys, as a reaction to the safe, civilising influences to which they are exposed.

The need for adventure, if not fulfilled in socially acceptable forms, frequently erupts into anti-social behaviour, and among adolescents into delinquency. Where the environment provides natural hazards such as trees, lakes and hills, to which children have access, and from which they are not anxiously protected, they find in these a sufficient outlet for natural energies and a challenge to their adventurous desires. When, however, the environment of city and slum cannot provide such opportunities, venturesome youths may find exciting and illegal ways of satisfying their needs. It is surely no accident that in the statistics of delinquency boys outnumber girls by far, that the peak age for these misdemeanours is in early adolescence, and that the majority of offences seem to involve destructive and violent behaviour. A recent case reports a most audacious plan by five fourteen-year-old boys to break into a warehouse by a daring climb over rooftops, to load up the firm's lorry with stolen material and drive it away. The boys had no clear idea of what they were going to do with the stolen goods and confessed they were more interested in the "kick" they got out of it. Kurt Hahn, in writing of the adolescents' craving for mastery, refers to them as "the listless and the lawless". He suggests that the numbers of the lawless are on

the increase among adolescents because they are not challenged sufficiently by society (2).

The recognition of this need for exciting and demanding activities, which when frustrated leads to destructive behaviour, has prompted in a few urban centres some interesting experimental work with "adventure playgrounds". In a controlled area, with a playleader to guide and help them, children are faced not with a bare stretch of tarmac but with a field containing some natural hazards such as trees and stretches of water, together with some old vehicles (firmly anchored to the ground), building materials including bricks and timber, and other challenging oddments. Reports (3) from Hull, Birmingham, Crawley and other places suggest that many children find in these playgrounds, at week-ends and during the long holidays, opportunities for adventurous play, and thus an outlet for energies which otherwise might have been employed mischievously.

Yet is opportunity for adventure enough? It must surely be held in tension with responsibility. Unless risks are taken with some realistic understanding of what is involved, adventurous activities may only be foolhardy gestures of bravado, ending in unnecessary injury. We see many instances of this foolish behaviour, not only endangering those who voluntarily take the risks, but irresponsibly involving others. There is here a dividing line not easily drawn, between natural and unnecessary risks, and heated arguments often arise when mountaineers, overtaken by bad weather or accident, have to be rescued from some dangerous crag. To be responsible means first to be disciplined, to be as skilled and as prepared as possible to meet the contingencies which may arise in an adventurous pursuit. The mountaineer must know his map and compass work; he must equip himself with efficient ropes, slings, boots and suitable apparel. He must train so that his experiences teach him what reserves of energy and food are necessary for certain ventures. This is, in a sense, responsibility *to* himself, in which he cheerfully limits his freedom in order to gain greater freedom upon the hills. There is also involved responsibility *for* oneself, the ability to accept full responsibility for the consequences of one's actions.

Responsibility to oneself and for oneself, however, is not enough. To be responsible means that one is aware of and accepts one's obligations towards others. An action taken in isolation may not remain isolated but may spread into social consequences. "Am I my brother's keeper?" can only be answered in the affirmative by the socially sensitive, for I am responsible *for* more persons than myself

when I am the cause of their actions. This kind of responsibility can only grow in fellowship and group experience; there is contained within it the beginnings of leadership, for a sense of mutual obligation derives from a concern for others. Loyalty to other persons and groups is the sign that one is willing to be answerable for more than oneself. Finally, in this wider social sense, we are not only responsible *for* but responsible *to* others, and to the groups to which we belong. For the religious person this will mean an ultimate responsibility to a suprapersonal authority, over and above the persons or the group, to whom one is answerable. Where God is the ultimate authority then man is supremely responsible as a child of God *for* himself, and responsible *to* God who in Himself is the eternal value man seeks to follow.

We face, then, the difficult dilemma that man can be so adventurous as to be irresponsible. We are constantly reminded of this in our newspapers when people venture on some exciting sport without adequate equipment, and without a thought for the inconvenience and dangers to which others may be exposed on their account. But man can be so aware of his responsibilities that he ceases to be adventurous, and we are not reminded of this greater danger frequently enough. (It is interesting to speculate about our own choice if we had to choose between heroic death and secure stagnation.) Mercifully, the dilemma may be resolved by a balance between adventure and responsibility, a synthesis of action and awareness, for which the young should be educated.

The various peace-time educational movements designed to provide adventurous opportunities for character training, seem to have recognised this balance implicitly in all their programmes. At the end of the last war there emerged a conviction that opportunities should exist to bring out in young people qualities such as those shown by men of the fighting forces in commando courses, in exploits by parachutists and frogmen, in endurance feats in the jungle, upon the seas and on the mountains. Hence adventure courses have increased, offered by various groups concerned with young people, not to provide adventure merely for the thrill it gives, but adventure within the framework of responsibility.

Outward Bound is perhaps the best known of these movements, but Gordonstoun School, with its earlier plan of the Moray Badge, and the recent Duke of Edinburgh Award scheme, stem from similar origins. There are adventure holidays available through the Youth Hostels Association and the Central Council for Physical Recreation,

involving climbing and walking, pony trekking, ski-ing, sailing and canoeing. In Birmingham there is the "Fram" venture for boys' clubs, and regular training for outdoor expeditions in Snowdonia. More and more young people seem to be drawn to these unorthodox activities which demand some kind of responsible training. What do these movements do? Are they educationally sound? Is their success something of which "our ordinary systems of education" ought to take account? Perhaps some answers will come as we examine one of these schemes in more detail.

The first Outward Bound school in this country was founded during the war for those too young for the armed forces. Its function was far wider than that of a Services pre-training unit. It was expressly created to train a generation's character, and to encourage the powers of leadership already emerging in young men and women in war. There are now four well established Outward Bound schools in Britain (two sea schools and the other two mountain centres), and a number of others have been begun successfully in various parts of the Commonwealth. In Africa the schools are interracial. Boys go for a period of just under a month and the usual age range is from about $15\frac{1}{2}$ to 19 years. There are occasionally courses for girls at these schools. Selection for the courses is in the hands of schools, industries and education committees, and parents who wish to send their boys privately may do so if they pay the fee. Admission is not restricted to those of outstanding physical strength or prowess; all that is required is that a boy must be in good general health. Boys of all types are included—of varying intellectual ability and physique, boys from secondary modern schools, from public schools, from apprentice schemes in factories. Occasionally a problem boy may be sent, a delinquent or near delinquent, whose desire for adventure has led to anti-social activities.

The emphasis is quite simply upon the living of a life in the open air, in all weathers and under varying conditions, in which physical dangers and hardships are faced in small groups. The boys operate in patrols in which teamwork must be evident if the challenges of nature are to be met. They choose their own leaders from the patrol once they have got to know each other, and they have to abide responsibly by their choice once it is made. They are given basic training in the skills they need when, for example, among the mountains, they learn how to use map and compass, how to use simple camping equipment, how to administer first aid, and how to rock climb. The purpose is not only to turn them out as competent moun-

taineers or sailors. Many of them may never become regular moun-
tain or sailing enthusiasts once the course is over. The course is not a
training for the sea and the mountains; it is a training through the
sea and the mountains. The purpose is to place the boys in situations
in which by facing hazard they must face themselves. Character is
formed when the pressure of danger means that risks have to be
clearly seen and cheerfully accepted. This is easier when you belong
to a team and mutual support is given within a patrol, but it also makes
demands of loyalty and co-operation upon the individual boy.
Venturing out into new experiences upon the mountains and sea
teaches many youths that there are things they can achieve which
they had thought impossible. They also experience the humility of
knowing their own unavoidable limitations. The emphasis is upon
competition with self rather than with others, and further importance
is laid upon the service to the community which the schools demon-
strate. Most schools form mountain rescue patrols or coastguard
units or combine to help in forestry work. Here there is a balanced
training providing all the excitement and adventure needed, but all
within a framework of personal and social responsibility.

Motivation is also stimulated by idealism. In the school in which
I worked the patrols were named after great mountaineers and
explorers—Bruce, Mallory, Scott, Whymper, Shackleton and others
—so that the names and stories of these men give impetus to the boy's
endeavours. The motto "To serve, to strive, and not to yield," is a
sentiment formed and strengthened during the course. When awards
are made at the end, they are made not for achievement only, but
also for effort. A boy of poor physique may achieve a higher award
than a much stronger boy, because he has done more with what he
has got, by showing greater character and resourcefulness. The
overcoming of weakness is regarded as equally important with the
development of natural strength.

There are many dangers, of course, in this kind of training.
Some have been critical of its German antecedents and have made
comparisons with the Hitler Youth movement. Some see in it a
devastating experience for the boy who yields and thereby fails. Yet
each boy whom I have known take the course has emerged with some
permanent strength which comes from insight and experience, freer
and more disciplined at the same time. This is obviously impossible
to assess accurately.

There seem to be five basic principles which underlie the practice
of the Outward Bound schools and which might offer provocative

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comparisons to those who serve in the "ordinary" systems of education. Let us enumerate them and examine their implications for education generally.

(i) *The facing of natural hazards by exposure to situations involving an element of calculated risk*

Much of our educational system is designed to eliminate risks. We are rightly concerned that children in our care should be protected from injury, both physical and emotional. Yet to grow a generation willing to adventure, to reach out into the unknown, is to grow children willing to take risks. Some primary schools are increasingly supplying opportunities for hazard in the provision of playground equipment such as high steel structures and commando "swarming" nets.

Yet adventuring is not only an activity of the body, it is implicit in any risk one takes when faced with the need to think, to feel, or to act for oneself. Is there enough conscious provision made in our schools for authentic choice? Without choice one may do as one is told in perfect safety, and there is no responsibility involved, for if things go wrong it is then the responsibility of the person who gave the command. We tend to associate courage with feats of physical daring, but courage is implicit in every act of choosing. To choose is to overcome the fear of making the wrong decision, to break through the paralysis of inaction to the confidence of having chosen. Courage is not the absence of fear, but the overcoming of fear. The young child in the infant school on his first venture on the playground climbing frame knows this as surely as the adolescent boy climbing his first crag.

It is, therefore, in the attitude to a new subject, to a strange medium of play, to the new class to which he is transferred, that the child is faced with hazards and choice of action. The educator must provide such situations and be an encourager, a builder of confidence, one who faces the child continually with choices which he is able to sustain.

Children display fear in the presence of new experiences demanded of them, partly from the fear of making mistakes. "If a thing is worth doing," said a local educator, "it is worth doing badly." To so build up a child's confidence that he is capable, not only of contemplating but of sustaining a mistake, is to have achieved a positive contribution to the child's character. For without the ability to face mistakes, men are concerned to live in a state of nervous safety.

Are we then, as educators, sufficiently aware that helping the child to take, not only physical risks, but also risks of an intellectual and moral kind, is a positive means of growing character?

(ii) *The development of skills in competition not with others but in competition with one's own previous performance*

In the Outward Bound schools the higher badge awards go to those who have improved in relation to their own previous efforts, as, for example, in athletics and mountain craft. It is possible for a boy to achieve an Honours award whose actual performance is well below that of a boy who has received a Merit or only a Member's badge. The distinction lies in the amount of effort involved in that boy's results. This seems to encourage a boy to be responsible *for* himself, to enter into the training with the maximum of zest and the minimum sense of insecurity. Do we apply this insight into our school situations both in the specific development of physical and intellectual skills and in the general growth of attitudes? Competition has its place most certainly in education. Investigations into levels of aspiration in learning (4) seem to suggest that competition is most valuable when the child is in competition with himself rather than with others. Competition, of course, is stimulating to those who are successful, but for those who are not it may be a constant source of humiliation. Instead of building up robust and confident attitudes, competition with others may destroy them, until there is a basic unwillingness to take risks, for fear that they will lead to inevitable failure. Yet the result may not be failure; it may only be failure by comparison with that of someone far more talented.

Competition on these adventure courses is not confined to self-competition, for the various patrols compete against each other. It is here that responsibility *for* is fostered and group loyalty grows. Each boy is encouraged to feel personally responsible for his patrol's total performance. Here again marks are given not only for the patrol's objective results, but also frequently for the spirit of a patrol, particularly the ways in which the stronger members help the weaker ones. (This method of marking a patrol is not disclosed until afterwards.)

(iii) *Risks taken not in isolation but in small co-operative groups, which provide mutual stimulation and support*

The small co-operative groups, the patrols which number no more than a dozen boys and an instructor, are themselves part of a

larger purposive community. The total "school" is usually no more than a hundred boys in number, large enough to provide rich diversity and stimulation, but small enough for members of it to have a vivid sense of community identity.

Any child, to achieve social maturity from which adventurous steps can be taken, must be girded about by this co-operative community. It may only be a play group in an infant school, or a gang group in a junior school, but it is the small group to which the child belongs, which he knows and trusts, and to which he forms a loyalty, for which he will begin to sacrifice. When we see the school itself stimulating and supporting these smaller groups, we can see what a co-operative society can do for the children in it.

One of the regrettable tendencies in modern education is the growth of larger schools in the name of efficiency. There is much research needed to see how the impact of large numbers affects not only quality of work, but also the development of attitudes. A ten-stream secondary school is perhaps more efficient in terms of the provision of halls, gymnasia, laboratories and playing fields, but is it efficient in terms of personal development, in freedom for children to achieve the best academic results, and in the formation of character? How large may a unit become before it ceases to be an identifiable group in which a child can feel he has personal participation and from which he receives effective support? Can there in fact be responsibility *to* if there is no clear community identity to which the child may be responsible?

(iv) *The small groups are deliberately mixed socially, and unstreamed in terms of intellectual and physical ability*

This social, unstreamed nature of the groups makes for a greater variety of response within the patrols and a greater need to be co-operative as a team. It also provides a more typical social setting in which leadership can emerge. The public schoolboy and the boy from the sixth form of a grammar school are not the inevitable choice of the boys for their patrol leaders. Apprentices with pronounced accents, both vocal and behavioural, are sometimes elected. I have known a problem or delinquent boy chosen from a group containing those with much higher social and educational status. Not only to work under leaders, but to work alongside boys from perhaps previously despised social groups, to face common hazards and hardships, to share the same three-man tent in a storm, is socially enriching; it is productive of greater tolerance and maturity when the

first barriers of hostility are penetrated by the common challenge of danger.

An interesting result of this system may be seen in the fact that winning patrols are not only those with the larger number of more talented boys. A patrol composed of quite average members led by a boy with real gifts of leadership, sometimes unperceived by adults, may succeed by sheer team spirit in achievements quite remarkable. Or again, where there is rivalry for leadership within a patrol, the way in which it is handled by the boys themselves is an education in personal relationships for the whole patrol.

In our regular systems of school education such mixing may not be possible, and for academic purposes it may be undesirable. Yet there is surely an educational purpose in the provision of informal centres where social and intellectual leaven can work. At a local level perhaps county colleges may answer the need, but such experimental centres as Derbyshire provides on the high moors may point the way for more establishments of the same kind. Here a permanent warden and part-time instructors help adolescents face the hazards of the outdoor in socially heterogeneous groups.

(v) *The growth of attitudes and aspirations fostered by deliberate idealism and service*

The Outward Bound patrols, as we have seen, are named after great adventurers. One boy renamed his group the "Spider Patrol" until it was explained that he had got the wrong Bruce! Books about these men and many others are available in each school library for light reading, so that the adolescent striding over the fells imagines himself to be a Whymper and the boy in the kayak thinks of himself as another Gyno Watkins. Where there is this identification in action there may also be identification with the values and the standards of the great. Each day this aspiration is strengthened, for whether they are at the school itself or camped upon the hill, prayers and readings from the spiritual adventurers begin the venturesome activities of the boys.

Because the adolescent is intensely interested in persons we can see that this may have a powerful effect upon his ideals. If we may join the psychology of McDougall to the philosophy of Whitehead (5) we can say the development of adventurous attitudes is dependent upon the formation of sentiments, which stem from living closely to heroes and heroines of the greatest kind, in short, by the "vision of greatness'. In any encounter with a hero, a child welcomes in delight

the adventurous spirit of the man, and in that moment of welcome the man has entered into and possessed the child. In that moment a standard has been raised, a value recognised, a sentiment begun. This is the power of the incarnate word, the word made flesh, more powerful by far than the abstract word of dreary exhortation. When the hero, whether geographical explorer or spiritual seeker, stands for all to see as in need of someone beyond himself to whom he is responsible and from whom he must draw strength then, I believe, the most potent influence in character education is at work. It is through these living visions of greatness that the stimulation of adventure and the discipline of responsible living are fused for the young.

An impressive feature which contributes to this idealism in the Outward Bound schools is the Samaritan Service. Here adventure and responsibility are wedded in rescue services, lifeboat and coast-guard duties and forestry activities. The school is dynamically related to the outside community, thus demonstrating the ideals and sentiments built up during the month of training. How many schools, I wonder, willingly draw from the community by receiving the service of prominent citizens, but never show service in return? Are there ways in which the school as an ideal society may demonstrate its idealism in action, thus fostering attitudes of willingness not only to strive, but also to serve?

Can we then regard this new development of "adventure courses" not only as supplementary and parallel to "our ordinary systems of education" but as a provocative experiment which constrains us to re-examine the assumptions we make concerning character training within our schools?

REFERENCES

1. James, D. (ed), *Outward Bound*, London, Routledge, 1957.
2. Hahn, Kurt, "Outward Bound", in *The Year Book of Education 1957*, London, Evans Bros.
3. Unpublished Reports on "Adventure Playgrounds" by the Birmingham City Council Education Committee, the Linnaeus Street Playground Committee, Hull, and the West Sussex Education Committee.
4. Allport, G. W., "The Ego in Contemporary Psychology", *Psychol. Review*, L, 1943, pp. 451-78.
5. Whitehead, A. N., *The Aims of Education and Other Essays*, London, Williams and Norgate, 1929.

THE PROBLEM OF COMMUNICATION IN RELIGIOUS EDUCATION

by BASIL A. YEAXLEE

Formerly Reader in Educational Psychology,
University of Oxford

THE following is extracted from the report of a research project, undertaken for the University of Birmingham Institute of Education, which occupied the major part of the years 1954-56 and was made possible by a grant from the Cadbury Trust. Copies of the report have been lodged at the University of Birmingham. Other aspects of the problem of communication in religious education are now being investigated by the Rev. K. E. Hyde.

The method of inquiry was by interview. Practically no use was made of questionnaires, though a series of questions devised for my own guidance formed the framework for the conversations and ensured that the material gathered should be reasonably comparable. With my research assistant, Miss M. F. A. Tatham, to whom the whole enterprise owes much, I visited schools in several southern and midland counties, talking with heads, teachers and sometimes with boys and girls. Some data were obtained from schools at a greater distance from Oxford. The schools were selected proportionately from infant, junior, secondary modern, secondary technical, grammar, and public day and boarding schools, boys', girls' and mixed, in order to give a fair picture of the general situation in England. Useful insight was gained from the study of about a hundred essays on their own religious education, from the home onwards, written by the men and women students of a two-year training college at the beginning of their first year. Another valuable document placed at my disposal by a grammar school headmaster consisted of extracts from essays written by sixth-form boys of the four schools of which successively he had been head. Two scripture specialists in a large grammar school for boys near London on their own initiative prepared and administered questionnaires to the middle and upper forms in the school and passed all the resultant scripts to me.

Instead of offering statistics, I have quoted freely from those who, in these various ways, were good enough to supply me so readily and

fully with information. Their *ipsissima verba* are far more illuminating than generalisations on the part of a researcher, and impart an otherwise unattainable actualness to the report. It will be obvious however, that unfettered statement of facts as these collaborators of mine have experienced them, and expressions of opinion arising from experience, can be recorded only in such a way as to avoid identification of schools or individuals. This is not because we were "snooping"; on the contrary, our first step was to invite the co-operation of the head and the members of the staff concerned, and in every instance the response was an expression of keen interest in the inquiry, with an invitation to visit the school. When we did so we found great readiness to answer any questions we chose to ask, and to discuss frankly and fully anything and everything relevant to the subject. To make sure that our records of what we had been told were accurate, we asked at the end of each conversation that the set of questions which I had prepared for my own guidance should be answered in writing. This confirmed, corrected and filled out our notes, while also it provided a clear pattern for the co-ordination of our material. Courtesy and discretion make it necessary to abstain from the personal acknowledgments and thanks which I should like to have offered both in my report and here, but I am concerned to make it clear that the report owes at least as much to the friends who co-operated so generously with us as it does to me, though the responsibility for the form of it is of course my own.

All boys and girls pass through successive stages of development, such that the age-groups into which they are divided for purposes of school organisation (basically primary and secondary) are characterised by differences of capacity and response. It would therefore be fallacious to generalise about "children" or "pupils". At the risk of appearing (though not, in fact, being) repetitious, it is necessary to present our evidence and deductions therefrom under the sub-headings of primary, secondary modern and grammar in each section of what follows. As will transpire, the distinction between the latter two is less well-defined than that between the primary and the secondary as a whole. Everyone recognises the inadequacy of the prevailing methods of distribution between secondary modern, secondary technical and grammar schools, which results in over-lapping between them, and may indeed be affected prejudicially by either too low or too high a proportion of grammar to modern and technical places in a given area. Experiments such as that of the L.C.C. with comprehensive schools or the new schemes in Leicester,

Nottingham and Southampton are attempts to overcome the real difficulties inherent in the present classification of children. Meantime the only way of dealing with our material is to follow the conventional terminology while insisting that the terms "grammar" and "modern" do not imply the popular but false discrimination between superior and inferior "types".

(1) PRIMARY SCHOOLS

"Children of this age are so interested in almost everything which is reasonably presented to them that the problem of communication would appear to come later." In such statements, however, communication of words and ideas would seem to be intended, for little children certainly receive impressions and develop attitudes, both as they respond emotionally and imaginatively to their environment, and in personal relationships. Their ability to retain facts is often not great, but children of this age do understand both simple facts and ideas which can be expressed in concrete form. Their general response seems to depend most of all on the teacher's sincerity of purpose and liveliness of sympathy with "the child in his setting", as Adler would have put it. An experienced teacher knows the *feel* of a successful lesson, not only because the children listen attentively and, as it were, actively, but also because she is aware of *rapport* between herself and them. The response to any lesson cannot really be measured at the conclusion of that lesson. Rather it is shown by the children's seeing, or failing to see, its connexion with their own lives, and by the extent to which they attempt to put it into practice. Emotional liveliness or dullness is the most important factor in their responsiveness, imaginative quality comes next, intellect last.

Children never seem to tire of stories *as stories*. There seems little doubt that children of primary age are enthralled by "scripture" generally, and are fascinated by the personality of Jesus. This was particularly evident in their eagerness to watch and to talk about the television series on "Jesus of Nazareth", reports on which we took some trouble to obtain, both from teachers, and from groups of the children themselves. Because there is so much in the Bible stories (particularly, says one headmaster, in the Old Testament) that appeals to juniors, they remember these well. Even in a backward class the response is mostly quite keen. Meaning, however, is difficult, especially for B stream children. In general, children of this age do not consciously relate historical fact to their own experience, though teachers find them ready to discuss and to ask

questions. One teacher says: "Of course I do not expect much of this with young children, but their understanding is surprising"; another remarks: "Unfortunately factual response cannot be tied up with spiritual impact, which depends on the personality and belief of the teacher, the child's environment and the social character of the school." In another connexion I shall refer to the question raised by another headmaster who thinks that we may be asking too much of juniors.

It is repeatedly observed that children who attend church and Sunday school are generally more interested than others in scripture teaching. The effect of such attendance, however, though it makes for greater interest, does not necessarily result in greater understanding, especially if the Sunday school teaching is ill-informed or fundamentalist.

(2) SECONDARY MODERN SCHOOLS

Throughout this study the factors which influence communication in all teaching and learning are of course assumed. The types and degrees of intelligence found in any particular school or class may be taken as an illustration. Variety occurs in every kind of school. Indeed one teacher goes so far as to say, with some exasperation and some irony, that one's chance of finding oneself in the Kingdom of God appears to depend on the height of one's I.Q.! The conditions of communication in secondary modern schools are distinctive, but this is not because the pupils' I.Q.'s fall closer to the national average than is the case in either the secondary grammar or the special school. The important differences are that school life in the secondary modern school is shorter, the interest of the boys and girls in leaving school and getting a job becomes predominant as they approach the age of 14, and in most secondary modern schools there is no influence of an external examination such as G.C.E.

(a) Favourable conditions and response

As in the primary schools, it is clear that the teacher's interest, enthusiasm, conviction and competence "do more than any other factor in reinforcing the religious knowledge lesson". Scarcely less important is variety of method and approach, with ample provision for activity, since many of the boys and girls are disinclined to read for themselves on this or any other subject. This, no doubt, is the reason why one headmaster writes that a successful lesson is one in which "satisfaction" is experienced at the time, without consider-

ation of further follow-up. It may provoke penetrating questions; it may have engaged great activity and lead to more; it should naturally lead on to the next topic with a sense of expectancy. "Conversely it is a 'flop' if the pupils have been preached into a coma."

It seems that most secondary modern boys and girls on the whole learn the facts and reproduce them, but appear to make no linkage with their daily lives at all. They respond to parables, especially those of action such as those of the Good Samaritan and the Prodigal Son, or to miracle stories like those of Bartimaeus, the Feeding of the Five Thousand or the Changing of Water into Wine. One teacher says that a fair amount of factual information is retained, especially the outstanding events in the life of Christ. The knowledge of the Old Testament which is retained is apparently largely confined to stories concerning the heroes, from Noah to Samson, but the boys and girls remember very little after that period, with the exception of Daniel, and in any case very little detail remains in their minds. It should perhaps be remarked that often the non-specialist teacher is not altogether at home himself with the prophets, and does not see them sufficiently clearly as heroic personalities because he has not grasped the nature and the practical purpose of their utterances. Nevertheless the pupils are generally greatly interested in the Old Testament stories, perhaps because they have not heard them repeated so often as the New Testament ones. In this connexion it may be noted that while over-familiarity with a story, often due to the too frequent recurrence of it at various stages in the syllabus, naturally takes the edge off the pupils' interest, some teachers find that at the secondary stage there is far *less* familiarity with outstanding biblical stories than they would have expected, which raises the question of what has been taught in the junior school and how. It is to be hoped that the indefensible—and in fact illegal—practice of dropping religious instruction altogether during the last two years before the "eleven-plus" examination has not become at all widespread, though we have had first-hand evidence of its occurrence.

There is a marked emphasis in the evidence upon the effect of the home and church or Sunday school background on pupils' response to religious instruction and worship at school. If there is no support of this kind—and in the majority of cases there is more indifference than antagonism in the homes—"what is taught at school is not reinforced elsewhere and is forgotten, so that every lesson has to break fresh ground and must begin with recalling and revising to a far greater extent" than is usually found necessary in teaching other

subjects. On the other hand, if pupils, even of average intelligence, show a good grasp of Christian principles and fundamental facts, this nearly always reflects interest at home and attendance at church or Sunday school. Furthermore it is the experience of some teachers that boys and girls who respond thus to religious instruction and worship because of the stimulus which they receive outside the school tend to be keener and more responsive to teaching in general. This point emerges from what has been written and said by some contributors but closer inquiry, perhaps of a statistical kind, would of course be needed to establish it as a dependable fact.

(b) Unfavourable conditions and response

The importance of conviction and competence on the part of the teacher has been mentioned above and there is no doubt that the majority of teachers who give religious instruction possess both. The doing away by the Education Act of the "time-table clause", which applied to board schools and elementary schools from 1870 till 1944, and the inclusion of a specific conscience clause for teachers, makes it no longer inevitable that religious instruction will sometimes be given by teachers who are unable to give it *con amore*. The increase in the use of scripture specialists in secondary modern schools is an advance in the same direction. But failure in either primary or secondary schools to use this freedom with regard to the time-table obviously frustrates the intention of the teachers' conscience clause, and it is equally unfortunate if teachers whose Christian convictions and whose wish to give religious instruction are evident do not realise the necessity of competence. This weakness runs through all types of school, from nursery to grammar. Sometimes it means that teachers have not made a sufficient study of the Bible and the Christian faith, sometimes that they do not know what the Education Act provides or the Agreed Syllabuses contain. It is bad enough when lay or clerical critics of what is taught in county schools suppose, and assert, that it is forbidden to teach the divinity of Christ, or that no reference to doctrine, the church or the sacraments is permissible, but teachers should know better. What happens, however—in a minority of cases, let us hope—is concisely stated by the headmistress of an infant school, but reference to the same thing is also made by representatives of all the other grades of school that we visited. "Failure to grasp facts comes through facts being unrelated to children's own interests, experience or previous knowledge: failure to grasp meaning comes through too hazy a presentation, due

to the teacher's not having thought out the meaning for herself—or conversely through the meaning being so stressed that there is little narrative and the children lose interest. Teachers are afraid to speak frankly for fear of offending against the requirement that 'sectarian teaching' must be avoided. There is a tendency, therefore, to try to be 'undenominational', and so non-committal that children think that religion doesn't matter."

Here again, but on the negative side, the powerful influence of the home background is repeatedly and emphatically stated. It is even more potent than in primary or grammar schools because, just at the stage when these young adolescents are seeking to make sense of things, they are most conscious of the world outside into which they are so soon to go as wage-earners, and are moved neither by the spontaneous and naïve curiosity of primary children nor by the intellectual questionings and conflicts of grammar school sixth-formers. In the particular school from which this testimony came only ten per cent of the pupils attend church or Sunday school and the staff thought it unwise to talk about worship or even attempt it with the school as a whole, but prayers can now be taken in some classrooms during the religious instruction period. That may be an extreme case, but we had other evidence of ways in which the secularism of the out-of-school environment inclined pupils to dismiss religion with more than indifference or, even if they showed some interest in the biblical stories, to fail to perceive any religious significance in them.

The prevalence of sex and social interests is probably more marked among girls in the third and fourth years of many secondary modern schools, especially in industrial areas, than among boys, no doubt because girls mature a year or two earlier than boys. Thus a group of secondary modern school heads and scripture specialists whose schools were all situated in the suburbs of a large manufacturing town which is also a cathedral city agreed that the girls were harder to teach and to hold in these last two years of school life than earlier, and that interest in religion seemed almost to vanish. "When they begin to go down X street we lose them, as far as religious education is concerned"—X street being the recognised promenade for young people (and, incidentally, American troops).

(3) Grammar Schools

It is no safer to generalise about grammar schools than about schools of any other type. Indeed there is even greater temptation

to put the testimonies of heads and teachers side by side and let them
tell their own story without any attempt to analyse or categorise them.

As in primary and modern schools the conviction, competence
and *rapport* of the teacher determine whether there is communication
or only instruction. Some sixth-form girls whom we interviewed
paid a striking if undesigned tribute to the scripture specialist who
taught them when they said that while the headmistress was very
sincere and took much trouble about conducting assembly and giving
scripture lessons "it's always different when *she's* there"—"she"
being the specialist—"taking prayers or teaching". The specialist,
a Quaker, was no sentimentalist and herself said that she probably
erred on the side of austerity in emphasising the factual and objective
in her lessons. On the other hand the chaplain-specialist in a public
day school spoke of the indirect influence of masters who were not
teaching divinity at all, one a Buddhist and another an atheist, while
unnecessary difficulties in discussing science and religion with the
sixth form arose from their being taught science by older masters
who "seem never to have heard of Coulson and contemporary
physicists: they teach from an almost Victorian standpoint". The
"ignorance of non-specialist teachers" was cited in another instance
as an obstacle to effective teaching in the school, though it would be
altogether contrary to the facts to suppose that semi-specialist or non-
specialist teachers are usually to be described as ignorant in the field
of biblical and theological studies, even if they have never had the
opportunity of prolonged systematic study. Some may care so little
about this part of their work that they neither read for themselves nor
prepare their lessons; but the majority, though inevitably limited in
their knowledge, take every opportunity of extending it and enriching
their thought. A serious difficulty which besets headmasters who are
very desirous of appointing specialists is that they frequently cannot
find men as well qualified and experienced in this subject as they have
in all the others. As one of them said, he could not countenance
divinity teaching that fell below the level to which the boys were
accustomed in all the rest of their work and therefore, after inter-
viewing half-a-dozen applicants, he was forced to make no appoint-
ment at all.

There is greater divergency of evidence about the influence of
pupils' background in grammar than in primary and secondary
modern schools: "Lack of religious background is no bar to the
mechanical acquisition of religious knowledge; boys without it often
do quite well in this respect"; again, "Quite a number of boys become

interested, though there is little religious background at home." It is evident, however, that "doing well" and "being interested" refer here to an intellectual apprehension which is not at all the same thing as a full response of mind and heart.

(a) *Favourable conditions and response*

A typical statement is that response, of course, varies with the quality of the teaching and of the group. Most boys readily ask questions. "The teacher knows when something important has gone home. We get much help in senior teaching from boys in the class who are active members of churches." A fuller reference to background influence of a favourable kind is made by a headmaster who, having said that biblical facts are retained more easily than doctrine, continues: "The pupil who shows up best in this connexion is one who comes from an actively Christian home where there is also a high standard of culture and education—books about the place, a good newspaper and informed discussion within the family. Many of the boys know many of the stories which they learn again when they come to school, but this does not make them blasé and unwilling to work: it seems to have quite the opposite effect, and they work all the harder."

A specialist who notes that, though religious knowledge commands a fairly high degree of interest, there is a certain unwillingness to do hard work and a wish to be stimulated by the teacher, with a minimum of effort on the pupils' part, qualifies this by saying that it is only a tendency. She speaks of the lively interest in essays on their own denominations read by upper sixth girls to their form. When interviewing this form we found them particularly keen to know more about the churches, not merely as a matter of intellectual curiosity, but from a desire to find one which they would like to join. In another school we heard of two sixth-form girls who had been systematically visiting neighbouring churches with the same purpose, and had been particularly impressed by the Christadelphians "because, after the service, they talked to us and explained so much: we felt that they knew their Bibles so much better than we do". Unfortunately in this particular case the girls, who were among the best in their form, came away with a sheaf of misunderstandings and misinterpretations of the biblical text, and therefore with a series of fallacious arguments and conclusions, which only fuller and more accurate knowledge could dispel.

The specialist in the first of these two schools says that discussion

is popular and often well done: "It is characteristic of our girls to be brighter orally than on paper; that may be characteristic of this whole generation." In a girls' public boarding school where religion is part of the atmosphere, the scripture specialist is young, well qualified and popular, and the headmistress, in teaching the sixth, definitely seeks to elicit discussion of problems put forward by the girls themselves, it was a little surprising to find that there is a marked hesitancy about discussion of religious matters. In the view of the specialist this is because, at about fifteen, girls often find a centre for their religious emotions, which have been associated with a pattern of doctrine and conviction that they fear may be disturbed if it is challenged in any way, by themselves or by others, though they are very ready to discuss any other kind of problem or system of ideas.

The upper sixth girls with whom, as mentioned above, we talked said there was "too much Bible", so that scripture periods were occupied with what they regarded as mere history and geography at the expense of what they called spiritual interpretation. They were not oblivious to the necessity that they should know the biblical text properly and should have a sound factual basis for their religious thinking and beliefs, but they wanted more discussion of the application of biblical teaching to life, though they agreed that discussion may easily degenerate into "hot air". Their specialist teacher, in what she wrote for us after our visit, made three significant points: first, what the teacher thinks is being taught may be quite different from what the pupil absorbs; second, even the sixth-form pupil does not know what is having, or will have, lasting effect; and third, even if the pupil thinks she knows what she is acquiring she may be unwilling or unable to express it. This tallies with what the chaplain-specialist in a boys' public school said with some emphasis: "What is really determinative is what happens to a boy during the two or three years after he leaves school, especially if he goes elsewhere than to a university."

In a school where there is very real interest, from the headmistress downwards, and where one or two girls are intending to go on to divinity courses in universities with a view to teaching this subject later (as one has recently done), the specialist writes: "Probably my class contains all four kinds of soil mentioned in the parable of the Sower. There is no way of measuring the success of a lesson: what may have helped one girl or aroused her interest may not appeal to others." Akin to this is a very discriminating estimate from another specialist: "I know a lesson has stimulated the thought of a number,

but what has been going on in the minds of the silent ones I have no idea, and how much discussion has been purely academic and not touched their wills I cannot estimate. I questioned the four top forms about their reactions to scripture teaching throughout the school and got the most conflicting answers. Some found that they remembered the facts from Sunday school better than from day school, but to some the work at day school was far more interesting. One group of upper fifths told me that they had learned most in the lessons we had had in my room, when we were so crowded that they had to sit on the floor all round me. It seemed that the sixth form had gained most, not only of knowledge but of understanding and desire to relate it all to life, and the better fifth form had gained more than the other, which happened to be a poor set—but that is to be expected, and I feel that the grammar school has a duty to the more academic side of the work. When I began to think about your questions I talked first to the upper fifth poor set, and became distinctly depressed, but the further up the school I went the more comfort I found. But fifty per cent leave from the lower ranges of the upper fifth, so there is no reason for complacency."

It is clear that, both intellectually and spiritually, communication is cumulative, and becomes most effective when boys and girls are sufficiently mature to ask penetrating questions prompted by the range and diversity of the knowledge they have acquired in all their studies, as well as by their developing experience of life. It is also important to remember that so large a proportion of boys and girls leave the grammar school before reaching the sixth form. The third point to notice here is made by several of our contributors: it is the importance and value of the small group. "Religious communication is possible only in small groups of six or eight boys. Another reason for grouping is the extraordinary difference in the background, previous knowledge, general ability and degree of interest between boys in the same form." Another master says: "Year after year it is with one group of fifteen rather than with either group of thirty that the most marked real progress is made in every way. This is not in any way due to the selection of the children: it is due entirely to the freedom of discussion and the opportunities for expression in the small group." A mistress writes: "In the large classes which schools are obliged to have now I am sure it happens that some girls are uninterested while the rest are discussing avidly"—the implication being that the teacher cannot in a large group maintain the contact with individuals necessary if the silent or bored or even quietly antagonis-

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tic pupils are to be brought into the questioning and discussion. Informality as well as smallness may be a reason why small groups can be thus effective. One mistress says that she will advise the new scripture mistress to arrange her scripture room in the new school in a semicircle—"to try to break the classroom feeling".

From a public day school for boys comes an interesting description of progress in communication. For the first three years boys will take in facts and argue freely: the range of questions is enormous. The middle forms like to see things in print and are more disposed to believe them when they are. In upper forms there is plenty of argument on theological and social problems, and textual criticism is popular. Response to ideas is measured by questions and trial problems. The atmosphere of acceptance is measured by "shock"— i.e., disturbance of accepted fallacies. Interest and discussion are aroused when an outside speaker addresses the boys. Most boys do not fail to remember facts, grasp meaning and relate facts to experience, but the stimulus to this last activity comes from a continuous re-statement of the Christian faith which cannot be given in the religious knowledge lesson alone.

(b) *Unfavourable conditions and response*

While the positive value of a religious home background is constantly being emphasised, less is said about the opposite in the case of grammar as compared with primary and secondary modern pupils. This may be because materialism and moral and spiritual indifference are less obvious in the home. One master writes that the boys in his school come from fairly well-to-do homes and are usually polite, so that they never show open antagonism. He divides them into three groups:

(i) Those who are from orthodox Christian homes but are prepared to seek for new truth.

(ii) Those from rather narrow fundamentalist homes. They either contract out by silence or struggle obviously within themselves for a more liberal and intelligent faith. Some, he suspects, lead double lives, being fundamentalist at home and adopting a more critical attitude at school.

(iii) Those who are consciously or unconsciously materialists. Some come from homes where spiritual values are not so much denied as crowded out. Others find that their studies in science and other subjects inculcate values and attitudes which make spiritual

values seem unreal. On the whole these boys regard morals and
beauty as relative. It is of no use to try to teach them directly. A
good deal of spadework has to be done to prepare their minds and to
counteract other forces.

It appears, in fact, that where the home background is not
religious it is humanist and secularised rather than crassly materialist
or definitely antagonistic. In the course of our visits we found that
there are in many grammar schools and public schools far more
cases of the broken home than might have been expected, and this is
the most serious moral and psychological hindrance of all.

Difficulties in teaching, says one of our contributors, are the well-
known ones—inability to make the Bible, in the minds of the pupils,
relevant to life; and resistance from boys with an anti-religious home
(rare), or from boys who have turned against religion as they have
grown up (also rare). Apathy is the greatest enemy. Then too there
is the tendency on the part of teachers, often because only one period
a week is allocated to scripture, to try to teach too much: "boys fail
to remember clearly and cogently if the facts are not emphasised and
repeated"; "girls fail to remember the facts clearly and cogently if
too many are thrust upon them at one time".

As the most frequent obstacle in the way of communication,
teachers refer to the presence among their pupils of fixed ideas. "The
difficulty of knowing whether you have conveyed the meaning you
intended is considerable. So often pupils revert to an original false
conception of the meaning of words and events. Just as, in dramatic
work, a young author will revert to a fault which has been corrected
throughout a series of rehearsals, so children repeatedly in writing
refer to what they were first taught. It seems that there is real
difficulty in absorbing a new interpretation of a story that has been
long familiar. In teaching the meaning of the parables of the King-
dom, for example, it is often found that pupils recall the parable itself
accurately, but the understanding and memory of its interpretation
seem to elude them. In this connexion perhaps it is true that children
do in fact understand the parables as they were originally understood,
and that somehow explanation destroys an instinctive understanding.
Do we over-instruct, and analyse what has for them immediate
meaning?"

There is the other kind of fixed idea manifested chiefly in older
boys and girls for whom a scientific attitude appears to preclude faith
—truth lies only in what can be weighed and measured and the real

is in effect that which can be apprehended by the senses or by purely logical demonstration. Sometimes one or two boys or girls of strong personality may influence a whole form: "We need standards, but they can be evolved: there is no need of religion to provide them." In one girls' grammar school some among the top four forms said quite frankly that their minds were made up: they did not want to listen. (At the opposite extreme this occurs among fundamentalists.) Some said that they did not agree with the teacher and so were not interested. "Some are bored, I am sure; they might be less so if classes were smaller and one could make an approach which might suit them but would not be helpful to the majority. A few have the wrong attitude but they do not show it openly—though the questions of the others who obviously want to have the answers given to them so that they may meet their scornful companions sometimes give one a useful insight." Two or three teachers spoke of a kind of existentialism which seemed to them to be spreading among their pupils— a complete lack of interest in the *history* of anyone or anything, a readiness to be without roots, an interest only in what immediately affects them practically, day by day.

Over-familiarity may be the trouble with some boys who hear the scriptures read so often in chapel or at house-prayers (in the case of day schools at assembly or possibly also at Church) that they think they know and understand what in fact they do not. Some boys again are antagonistic and argumentative. "They will monopolise a lesson if allowed to do so, and are always ready with, 'But, Sir, if this is true then that follows'—but 'this' is usually an untenable premise."

Hardly to be regarded as an "unfavourable condition", yet certainly a perennial problem for the teacher, is the uniqueness of the individual in personality, circumstances, and needs. Even in the smaller groups these differences remain and in the very nature of the case are more important in the endeavour to communicate religious knowledge and to inspire faith than in the teaching of any other "subject" in the curriculum. For religion is essentially individual as well as inescapably social. The Christian religion in particular is a relationship between individuals—man and man because man and God. It is the mark of the true teacher that he or she can never escape awareness of the individual, and the teaching of religion even more than the teaching of anything else involves a pastoral element. "This girl would respond to a narrative account, simple but vivid—that one has been thinking about something that she has heard or read, and wants to discuss it; a third will be interested in

learning whatever the lesson contains and in trying to relate it to her own life; a fourth is feeling captious and would like to lead the class off to a discussion about Buddhism, having heard a vague remark that makes her think that here is the perfect belief. Each one could be taught if one had her by herself, but to give something to all at once needs much grace." We are reminded that the greatest of all teachers was Himself "full of grace and truth".

FAMILY SIZE AND THE ABILITY TO PASS THE GRAMMAR SCHOOL ENTRANCE EXAMINATION

by EVA BENE

Institute of Psychiatry, Maudsley Hospital, London, formerly London School of Economics

1. INTRODUCTION

IN the course of an investigation into the attitudes of boys who were in the third year of their secondary education in London, it was found that those who attended grammar schools had fewer siblings than had those who attended secondary modern schools (1). This finding is in accordance with those investigations which have shown that there is an inverse relationship between the intelligence of children and the number of their siblings. The best known of these, *The Trend of Scottish Intelligence* (2), gave the following mean I.Q. scores for children coming from various sized families:

Number of Siblings	Mean I.Q. scores
4 or more	96-91
3	101
2	105
1	109
none	113

According to Thomson (3) this relationship between family size and intelligence holds for all social classes. According to the data obtained in the present investigation however, the inverse relationship between family size and success in the grammar school entrance examination holds only for the working class. Table 1 shows the family size distribution of the middle-class and working-class (4) grammar school and secondary modern school samples. It can be seen that family size had no effect on grammar school attendance in the middle class, since two-thirds of the middle-class boys in both grammar and modern schools came from small families. Nearly two-thirds of the grammar school working-class boys also came from small families. Of those working-class boys who went to modern schools, however,

the majority came from large families. Examined in another way, the data show that 55% of the working-class boys from small families and only 28% of those from large families attended grammar schools, whereas 70% of both large- and small-family middle-class boys

TABLE 1

PERCENTAGE DISTRIBUTION OF SMALL- AND LARGE-FAMILY BOYS WITHIN GRAMMAR AND MODERN SCHOOLS

		Small Family %	Large Family %	Total %
Middle Class				
Grammar Schools	N 153	67	33	100
Modern Schools	N 66	67	33	100
Working Class				
Grammar Schools	N 164	65	35	100
Modern Schools	N 235	38	62	100

attended grammar schools. Some reasons why family size had a different effect upon the school careers of working-class boys as compared with middle-class boys were suggested by an examination of their educational and vocational aspirations and their attitudes to work.

2. FAMILY SIZE AND AMBITION

The investigation into the influence of family size on ambition was based on the assumption that children who come from small families are more likely to adopt adult values and attitudes than are children who come from large families. Parents who have fewer children tend to devote more time and attention to each individual child; they may also tend to expect more of each child than do parents who have many children. Such a difference in parental attitudes would have an effect on the attitudes of the children. It also seems likely that the more children there are in a family the more they tend to identify with each other at the expense of parental identifications, so that they are less inclined to take over their parents' value systems and to give the same importance to educational and vocational ambitions. Such considerations make it appear probable that children who come from large families are less motivated to do well in their school careers than are children from small families.

Three hypotheses were formulated and tested to see whether family size does, in fact, have an influence on children's ambitions.

It was predicted that children who come from small families (i) have higher educational aspirations, (ii) attach greater importance to their work, and (iii) have higher vocational aspirations.

Various tests and questionnaires were used to investigate the boys' educational aspirations and attitudes to work. The items included multiple-choice questions, statements, story completions and sentence completions. They were distributed amongst items dealing with various other matters and were administered in the course of three days.

Hypotheses (i) and (ii) were tested by comparing the percentages of the small-family and large-family boys who indicated that they had educational aspirations, or that they believed work to be more important than play. The boys' vocational aspirations were compared in terms of the prestige first of the jobs they *wished* to get and second of the jobs they *expected* to get in the future (5). The prestige of these jobs was evaluated on a five-point scale by a group of sociologists and also by the boys themselves. According to the sociological evaluation, a value of 1 was given to professional and managerial occupations and a value of 5 to semi-skilled and unskilled occupations. The evaluations made by the boys were arranged in such a manner that a job was given a value of 1 if they thought that almost everyone looked up to a person holding it and a value of 5 if they thought that hardly

TABLE 2

PERCENTAGES OF SMALL- AND LARGE-FAMILY WORKING-CLASS BOYS WHO INDICATED EDUCATIONAL ASPIRATIONS

	Grammar School		Level of Signif.	Modern School		Level of Signif.
	Small Family %	Large Family %		Small Family %	Large Family %	
Would like to stay in school after the age of sixteen	49	36		14	6	0·05
Would like to go to university	67	61		46	32	0·05
Would like to do better at lessons	66	62		66	64	
Sentence completions express aspirations in school	45	50		34	32	
Believes that one has to try to be one of the best in school	81	77		81	68	0·05

TABLE 3

PERCENTAGES OF SMALL- AND LARGE-FAMILY WORKING-CLASS BOYS WHO
INDICATED THAT THEY ATTACHED IMPORTANCE TO THEIR WORK

	Grammar School Level			*Modern School* Level		
	Small Family %	Large Family %	of Signif.	Small Family %	Large Family %	of Signif.
He would prefer to be best at classwork rather than at sports	66	53		59	55	
He would prefer a boy who is good at classwork to one who is good at sports	34	19	0·05	28	30	
He would rather be good at schoolwork than at sports	65	54		47	53	
He would prefer for a friend a boy who is good at class-work to one who is good at sports	39	31		40	40	
He would prefer for a friend a boy who puts homework before other things to one who has many interests and therefore little time left for study	69	64		47	49	
If he had planned to study for an examination but was unexpectedly invited to a party, he would not go to the party	56	38	0·05	54	46	

anyone did so. Hypothesis (iii) was tested by comparing the mean prestige values of the large- and small-family boys' future occupations.

The results of the comparisons made between the large- and small-family working-class groups are shown in Tables 2, 3 and 4. They indicate that family size does make a difference to the motivation of the working-class boys. Since the probability that differences will go in the predicted direction is only half as great as is the probability that they will go in either direction, the significant differences may be accepted on a level of confidence which is twice as high as stated in the tables. The results of the comparisons made between

the large-family and small-family middle-class groups are not presented, since the differences between them went in random directions; few of the differences were significant and not even these were consistent in direction.

In the working class, family size had an influence on the educational aspirations of those who went to modern schools, the attitude to work of those who went to grammar schools, and the vocational aspirations of both school groups. Table 2 shows that in the modern schools the working-class boys from small families expressed higher educational aspirations on all five items than did the boys from large families. Such consistency in the direction of differences is unlikely to occur by chance. In addition three of the differences are significant, indicating that more small-family boys wanted to be among the best in school, stay in school after the age of 16, and go to university. Although family size did not influence the educational aspirations of the working-class boys who attended grammar schools, Table 1 shows that it had considerably affected their chances of passing the grammar school entrance examination and Table 3 that it affected their attitudes to work. It may be seen from Table 3 that in the grammar school working-class group the differences between the large- and small-family boys go in the predicted direction on all six items and that two

TABLE 4

VOCATIONAL ASPIRATIONS OF SMALL- AND LARGE-FAMILY WORKING-CLASS BOYS AS EXPRESSED IN MEAN PRESTIGE VALUES OF FUTURE OCCUPATIONS

	Grammar School Level			Modern School Level		
	Small Family Mean	Large Family Mean	Level of Signif.	Small Family Mean	Large Family Mean	Level of Signif.
Prestige of jobs the boys would like to get, as evaluated by sociologists	1·65	2·02		3·01	3·02	
Prestige of jobs the boys would like to get, as evaluated by themselves	2·28	2·61		2·39	2·48	
Prestige of jobs the boys expect to get, as evaluated by sociologists	2·20	2·74	0·05	3·80	3·97	
Prestige of jobs the boys expect to get, as evaluated by themselves	2·97	2·98		2·64	3·02	0·05

of these are significant. This indicates that those boys who came from small families took their work more seriously than did those from large families. Family size did not affect attitudes towards study in the secondary modern schools, probably because there is in these schools less emphasis on academic work.

The vocational aspirations of the working-class boys were influenced by family size whichever school they attended. Table 4 shows that, in both the grammar and modern school comparisons, the differences between the small- and large-family groups go consistently in the predicted direction, two of these differences being significant. These results suggest that working-class boys who come from small families have a stronger desire to get ahead in the world than have working-class boys who come from large families.

3. Discussion of Results

According to Thomson (3) the inverse relationship between family size and intelligence holds for all social classes. From this it follows that there should be an inverse relationship between family size and success at the grammar school entrance examination in the middle class and in the working class. The fact that the proportion of large-family middle-class boys attending grammar schools is the same as of the small-family boys could be explained if the former were more strongly motivated to do well than the latter. This, however, does not seem to be the case. It is difficult to see how it can come about that small-family and large-family middle-class boys have an equal chance to pass the grammar school entrance examination if there is no difference in motivation between them, and if the latter are less intelligent.

It might be the case that the findings based on the Scottish sample do not hold for the present middle-class sample. In her review of the literature Anastasi (6) points out that the inverse relationship between family size and intelligence is always found in investigations dealing with unselected school children, but not necessarily in those dealing with special groups, such as university students or children of professional parents. If an inverse relationship can be shown between intelligence and number of siblings in one setting but not in another, then it must be due to cultural rather than genetic reasons. A study of the I.Q. scores of London middle-class children could do much towards answering this question.

The finding of this investigation, that working-class boys from small families more frequently pass the grammar school entrance

examination than boys from large families, is in accordance with Thomson's findings. Since, however, the small-family working-class boys are also more ambitious it seems possible that success at the grammar school entrance examination depends to quite an extent on a personality characteristic which is amenable to change both in its direction and intensity all through life, but particularly in childhood and adolescence.

REFERENCES

1. The sample has been described by:
    Himmelweit, H. T., Halsey, A. H. and Oppenheim, A. N., "The Views of Adolescents on Some Aspects of the Social Class Culture", *Brit. J. Sociol.*, III, 1952, pp. 148-72.
    Bene, E., "The Objective Use of a Projective Technique", *Brit. J. Educ. Psychol.*, XXVII, 1957, pp. 89-100.
2. Scottish Council for Research in Education, *The Trend of Scottish Intelligence*, University of London Press, 1949.
3. Thomson, G., "Intelligence and Fertility", *Eugen. Rev.*, XLI, 1950, pp. 163-70.
4. The social class of each boy was established on the basis of the prestige value of his father's occupation; and he was said to come from a small family if he had not more than one sibling, and from a large family if he had two or more.
5. This technique has been explained in detail by Himmelweit, H. T., Halsey, A. H. and Oppenheim, A. N., op. cit.
6. Anastasi, A., "Tested Intelligence and Family Size", *Eugen. Quart.*, I, 1954, pp. 155-60.

ACKNOWLEDGMENTS

A PRACTICABLE DIARY TECHNIQUE FOR TIME SAMPLING THE EVERYDAY LIFE OF CHILDREN

by L. M. SMALLEY

Headmaster, Westhoughton Boys' County Secondary School

INTRODUCTION

THE technique described in this article was designed to investigate the activities and interests of the pupils of a small co-educational secondary modern school, situated in S.E. Lancashire. The school served a small area consisting almost entirely of row upon row of typical late nineteenth-century terraced houses, separated at the front by cobbled streets and at the rear by narrow "entries", the area itself being surrounded almost entirely by industrial regions.

The 186 pupils of the school were divided by age into four forms, but the 34 children of Form 4 were excluded from the inquiry as all were due to leave school between April and December 1956 during the course of the investigation. Complete diaries, i.e. diaries covering each day of the week once, were obtained by the author (1) from 94 children, the remaining 40 children either being absent for part of the time or, in 5 cases, insufficiently literate to complete the forms. The mean age of the 94 children concerned was 13 years 5 months; 43 were girls and 51 were boys; 25 were in Form 1, 27 in Form 2 and 42 in Form 3. The average I.Q. (the mean of two Moray House group tests) was 98·9, 13 children having an I.Q. of more than 110 and 18 an I.Q. of less than 90.

OTHER TECHNIQUES

Most researches into the interests of children, such as the Interest Inventory, the Information Test of Interests and the Free Association Test (2, 3 and 4), have been discriminatory in nature although the test designed by Pennington (5) has a more comprehensive character. He divides interests into three groups, intellectual, active and passive, but the scores he obtains represent, as he points out, interest differences rather than intensities of interest. His results,

too, necessarily omit social interests, and are unable to distinguish between hobbies, artistic interests and physical activities.

Of the truly comprehensive techniques available neither the questionnaire nor the projection test is able to provide quantitative results, and therefore, in order to overcome the disadvantages which became apparent in preliminary experiments with an open diary technique, a controlled diary technique was finally adopted.

DISADVANTAGES OF THE OPEN DIARY

In reporting a survey of the leisure activities of the youth of Manchester and Salford, Wagner (6) provides three very sound reasons for rejecting the open diary technique. She maintains that many children are insufficiently literate to record a diary consistently or accurately; that lack of time sense in many children makes it impossible to time their activities with reasonable accuracy, resulting in much "lost" time; and that the diaries must be recorded at home, where the requisite privacy, quietness and equipment are frequently lacking.

Although Marburg (7) believes that open diaries cannot provide accurate records of children's activities, he nevertheless offers some useful suggestions. In order to obtain the best results he finds that diaries should be recorded in chronological order and that the children should be encouraged to write as freely and as fully as possible. To reduce boredom and fatigue the children should not be required to record diaries for more than two successive days at once, and they should feel quite certain that the contents of the diaries will remain confidential and never be presented in an unfavourable light.

When an open diary technique was given a trial early in this research the results obtained showed all the disadvantages listed by Wagner together with a marked tendency to omit routine items altogether.

THE CONTROLLED DIARY FORM

Experiments with a controlled diary technique showed, however, that it was possible both to follow Marburg's principles and to reduce or avoid altogether most of the disadvantages of the open technique.

The basis of the technique lies in the Diary Form shown opposite.

One such form was used for each weekday and fitted comfortably on one side of a foolscap sheet. The forms for Saturday and Sunday,

DIARY FORM

1 Time	2 What I did	3 With whom	4 Where	5 Interesting details
7.0				
7.15				
7.30				
7.45				
8.0				
8.15				
8.30				
8.45				
9.0	In school			
10.45				
11.0	In school			
12.0				
12.15				
12.30				
12.45				
1.0				
1.15				
1.30	In school			
2.45				
3.0	In school			
4.0				
4.15				
4.30				
4.45				
5.0				
etc. to				
10.30				

marked in quarter hours from 7.0 a.m. until 11.0 p.m., each required two sides of a foolscap sheet. These forms completely avoided the difficulties due to "lost" times and greatly simplified recording. They were not taken home but were filled in entirely in school; and the children were provided with three opportunities, of approximately 15 minutes each, to fill in the diary for a single day. These opportunities were given at 9.20 a.m. and 1.45 p.m. on the first day, and at 9.20 a.m. on the following day.

The children were informed that the diaries would remain strictly confidential and were encouraged to write freely and fully, particularly in column 5. The backward children were given as

much help as possible, but even so the diaries produced by the five most illiterate children proved unsatisfactory.

In order to minimise the effects of boredom and fatigue, approximately one month was required to obtain completed diaries from the children of any particular form. As far as possible the diaries were kept in the first week for one day (Wed.), in the second week for two days (Thurs. and Fri.), in the third week for two days (Mon. and Tues.), and in the fourth week for the week-end (Sat. and Sun.). Owing to holidays the intervals between successive recordings frequently became longer than planned. To assist the children to record their diaries for Friday evening and for the week-end they were issued with memorandum pads marked off in quarter hours. Although these reduced the privacy of the diaries their use proved to be essential.

Some form of motivation was found necessary, particularly with the older children. Interest was always maintained when the results were quickly made available and used by the children themselves for some such purpose as graphing the activities for the day, or comparing a "real" with an "ideal" day.

RECORDING

In order to design a scheme of classification the items from four diaries, two girls' and two boys' chosen at random, were classified by five referees: a housewife, a retired business man, a schoolmaster, a woman student and a schoolboy. As a result the scheme outlined below was adopted.

CLASSIFICATION

I. ROUTINE ACTIVITIES

  1. In bed.
  2. In school.
  3. Meals, travel, washing, dressing, etc.
  4. Duties, jobs and chores.

II. LEISURE ACTIVITIES

  1. Physical

    (a) Games in the street, school yard or park.
    (b) Swimming.
    (c) Cycling.
    (d) Others.

2. Social

   (a) Attending church, chapel or Sunday school.
   (b) Attending clubs or youth organisations.
   (c) Talking with friends.
   (d) Walking with friends.
   (e) Shop gazing with friends.
   (f) Visiting a café (or chip shop café) with friends.
   (g) Playing indoor games with friends.

3. Hobbies and Artistic Activities

   (a) Playing indoor games alone.
   (b) Painting, drawing, modelling.
   (c) Music.
   (d) Pets and animals.
   (e) Constructive, model making, sewing, knitting.
   (f) Collecting.

4. Literate

   (a) Reading comics or "bloods".
   (b) Reading newspapers and periodicals.
   (c) Reading books.
   (d) Visiting the library.
   (e) Writing.

5. Passive

   (a) Viewing television.
   (b) Listening to the radio.
   (c) Visiting the cinema.
   (d) Others, including watching sport and listening to gramophone records.

6. Miscellaneous: anything which does not fit into the above classes.

From the items about which the referees did not agree, the following principles were drawn; these proved very useful in dealing with the other diaries.

   (i) All routine short distance travelling, all meals and all jobs were included under "Routine, 3 or 4".
   (ii) If no activity was indicated the time was included under "Miscellaneous".
   (iii) "Sitting on the doorstep" was included under "Social".
   (iv) Watching a procession was included under "Passive".
   (v) Fishing was included under "Hobbies, 3 (d)".
   (vi) Dancing was included under "Physical, 1 (d)", but might equally well have been considered a Social activity.
   (vii) The time occupied by long distance travel by car, coach or train, was included under "Miscellaneous".

E

The children's names were written down the left-hand side of the recording sheet and the full classification across the top. Eight lines were allowed for each child, seven for the days of the week and one for the total. A stroke (/) was entered in the appropriate column for each quarter hour and a gate (⁄⁄⁄) for each hour, each day being checked to ensure that the total number of strokes was 168.

It was found easier to record a full week at once rather than each day separately but diaries which contained errors (usually of omission) could not be corrected a week or more after completion. A better procedure would be to check each day's diary as soon as possible after completion, even if the recording was deferred.

RELIABILITY

The consistency of the technique was tested by comparing the diary pattern for Monday and Tuesday with that for Thursday and Friday, the latter being recorded at least a fortnight later than the former. Since Friday night is "pay night", a favourite Youth Club evening and a popular night for cinema going, some differences were expected. It was anticipated that Thursday and Friday would show an increase in duties (particularly in errands) and that the corresponding decrease would not fall upon Social or Passive occupations; the results summarised in the following table bear out these hypotheses.

TABLE

All results in mean hours per day, excluding "School"

	Monday and Tuesday	Thursday and Friday
Bed	9·75	9·73
Personal	2·92	2·88
Duties	0·88	1·05
Physical	2·19	1·91
Social	0·77	0·95
Hobbies	0·35	0·21
Literate	0·41	0·41
Passive	1·75	1·93
Misc.	0·05	0·05

These two diary patterns are so similar (product moment correlation 0·995) that it would appear to be unnecessary, in an inquiry concerned only with diary pattern, to keep a record for more than two or three weekdays, carefully chosen with an eye to the evenings when Youth Clubs meet.

When the results of the 94 diaries for Monday and Tuesday were compared with those for Thursday and Friday, each category being taken separately, the following product moment correlations were obtained.

Category	Correlation
Bed	0·72
Personal	0·66
Duties	0·53
Physical	0·51
Passive	0·52
Social	0·47
Hobbies	0·32
Literate	0·49

These coefficients are concerned not with the general diary pattern but with the behaviour of individual children and the coefficients were, as expected, highest in the routine categories and lowest for the leisure time activities.

The results indicate that the technique has a high reliability for diary pattern but that individual diaries will, of necessity, vary considerably from day to day.

VALIDITY

The results provided by James and Moore (8) and Ward (9) were used as external criteria of validity for diary pattern, but difficulties were encountered due to differences in classification and to the fact that both these inquiries were carried out in the "pre-television" era.

The following table compares the results of this inquiry with those of James and Moore.

Categories James and Moore	Percentage of total time				Categories This inquiry
	James and Moore		This inquiry		
	Boys	Girls	Boys	Girls	
Personal + Meals and Travel	27·0	24·0	30·4	34·4	Personal
Duties	16·7	24·0	8·3	13·7	Duties
Play	22·7	19·7	26·1	18·8	Play (Physical)
Club + Talk	7·3	8·7	7·5	12·0	Social
Cinema + Read and Radio	26·3	23·7	27·7	21·1	Passive + Literate

In the three leisure categories there was no significant difference between the two sets of results (for Boys $\chi^2 = 0\cdot58$, for Girls $\chi^2 = 1\cdot57$) but the time spent on duties in this inquiry was significantly less than that obtained by James and Moore. The difference in the Personal category may be explained by the differing periods for which the diaries were recorded: James and Moore obtained their diaries for weekdays (excluding Saturday and Sunday) and for the period from leaving school until bed-time, whereas all the diaries obtained for the present investigation covered the full twenty-four hours for each day of the week. This difference does not, however, account for the fact that, in this inquiry, the girls spent significantly longer than the boys on personal matters, whereas James and Moore obtained precisely the opposite result.

Since Ward's results were expressed in terms of the *number* of children who undertook each activity they could not be compared in tabular form with the *time* spent on each activity as recorded in this inquiry. When, however, the results were compared graphically the diary patterns were seen to be very similar both for boys and for girls, except in the Passive category. In this category the diary results for both boys and girls were twice as high as those which would be expected from Ward's results. This difference was almost certainly due to the different method of recording; if 60 children claim to go errands and the same number claim to go to the cinema, more time will probably be spent at the cinema than in errand-going.

As a check upon the honesty and accuracy of recording, the diaries of seven children were searched for records of time spent in the company of other children. The seven children were chosen as being the most influential when judged according to the results of a sociometric test designed and administered by Mr W. A. L. Blyth. In this test the children were asked to place crosses against the names of the three members of their class with whom they would like (i) to sit, (ii) to play, and (iii) to go on a journey.

The seven diaries searched recorded 318 quarter hours spent in the company of other children concerned in the inquiry, and a check on the diaries of these other children disclosed only six discrepancies.

The diaries themselves gave the impression of having been recorded with honesty and accuracy, an impression which was confirmed by the opinion of those class teachers in the school who had worked in the neighbourhood for many years.

Further evidence of the validity of the technique was obtained

when the results in the separate categories were compared with those of other investigators.

THE RESULTS IN GENERAL

Table 1 shows the mean results for:

- (i) All 94 children
  Mean age 13 years 5 months, mean I.Q. 98·9
- (ii) 43 girls, mean age 13 years 3 months, mean I.Q. 98·5
  51 boys, mean age 13 years 7 months, mean I.Q. 99·1
- (iii) 25 children, mean age 12 years 4 months (S.D. 4·2 months)
  27 children, mean age 13 years 2 months (S.D. 3·6 months)
  42 children, mean age 14 years 3 months (S.D. 3·6 months)
- (iv) 2 extreme groups by intelligence
  I.Q. > 110 : 13 children, mean I.Q. 114·7
  I.Q. < 90 : 18 children, mean I.Q. 83·6

These results show that Physical and Passive occupations each accounted for about one-third of the total leisure time, that Social Activities accounted for one-fifth of the time, and that the remaining tenth was almost equally divided between Literate Occupations and Hobbies. They corroborate Pennington's findings (5) that secondary modern schoolboys are far more interested in passive and active occupations than in intellectual activities, but they differ from his on the relative importance accorded to passive and active interests. In this investigation the children of lower intelligence spend more time on active interests and less on passive interests than did their more intelligent fellows; Pennington's results show exactly the opposite trend.

Boys spent significantly more time on Hobbies and on Physical and Passive Occupations than girls, and significantly less on Social Activities, Home Duties and Personal Matters.

As age increased the children spent less time in bed and more time on Home Duties and Personal Matters. The most significant decrease was in Physical Activities, particularly with girls over the age of 13 years. There was a steady rise with age in the time spent on Social and Passive Occupations and a steady fall in Reading time—significant educationally if not statistically.

THE RESULTS IN SEPARATE CATEGORIES

The results for the Leisure Time categories are summarised in Table 2.

(*a*) *Routine Activities*

The bed times recorded in this investigation were slightly later than those recorded by Ward (9) and slightly earlier than those recorded by Wagner (6). The average time spent in bed was slightly more than 10 hours per night, but 7 children recorded an average of less than 9 hours per night.

The mean time spent on Personal Matters was slightly under 3 hours per day, the older children and the girls spending more time in this way than the younger children and the boys.

Home Duties were clearly recognised by the majority of the children as a normal part of the daily routine, girls spending more time on such duties than boys in the proportion 6 : 4. Almost exactly the same proportion has been recorded by Ward (9), Wagner (6), James and Moore (8) and Morton (10).

(*b*) *Physical Activities*

These were largely made up, as shown in Table 2, of games played in the street, the school yard and the children's playground of the nearby park. The prominent position of street games agreed much more closely with Ward's diary results (9) than with her questionnaire results, or with the questionnaire results of Stewart (11).

(*c*) *Passive Occupations*

The results on Table 2 indicate that television viewing has now become the most important of all Passive Occupations. At the time of the inquiry two-thirds of the children came from homes equipped with a television set, and all but 12 recorded some viewing. Children's Hour, variety, plays and sport were the most frequently mentioned programmes.

The mean cinema-going frequency was very similar to that obtained by Ward (9), Wagner (6), Morton (10) and Stewart (11), but the "spread" was a little wider. When compared with the findings of these other studies, the diary records showed a larger percentage not visiting the cinema at all, and a larger percentage making more than 3 visits during the week.

(*d*) *Social Activities*

More girls than boys attended Sunday school and there was a falling off in attendance with age. This agreed with the findings of other investigators but the percentage attending was, in this inquiry,

much greater than that reported by Ward (9), Wagner (6) or Stewart (11).

In spite of the variety of clubs available in the district, the club membership was much lower than that recorded by Stewart (11) for modern and technical school children, or by Ward (9) for secondary school children in general.

Most of the other Social Activities such as "chatting", "going for a walk", and "shop gazing", appealed more to the older children than to the younger.

(e) Hobbies

The record in this category was chiefly remarkable for its small size. Art and Music fared very badly, and in the Constructional category sewing and knitting formed by far the largest class. The longest time recorded by boys was for fishing, whilst the keeping of pigeons came next on the list. These two hobbies were important features of the adult male culture of the district and boys began to take an interest in them at the age of 13 years.

(f) Literate Occupations

All but 7 children (5 of them in the 14-year-old age group) recorded some reading, but the quality of this reading matter was lower than that recorded by Jenkinson (12) or Morton (10), comics of the *Beano* variety being preferred to "bloods" of the *Wizard* type. The number of visits to the library compared unfavourably with that in Ward's results (9); and the pen was clearly not a frequently used tool in many homes, only 9 children making any mention of writing.

CONCLUSIONS

The similarity between the results of the open and controlled diary techniques, together with the check upon the honesty and accuracy of recording, served to indicate that the method used provided a more accurate picture of the activities of the children than either the questionnaire or the open diary. Had the children wished to deceive, and so represent themselves in a more favourable light, one would assume, on general grounds, that they would tend to reduce the time spent on physical and passive occupations and increase the time spent on club attendance, reading and hobbies. Compared with the results of the questionnaire and the open diary those of the method used showed the opposite tendency.

As far as overall diary pattern was concerned the technique was

both internally consistent and highly reliable, and it provided quantitative results which enabled comparisons to be made not only within each category (as in the questionnaire) but between different categories.

The most serious disadvantage of the method lay in the amount of time required both for the investigator to check and record the results and for the children to fill in the diary forms. Such work by the children might, of course, be regarded as a useful exercise in English.

RECOMMENDATIONS

The technique would provide a class or head teacher with an insight into the out-of-school interests and activities of the individual child, together with much information concerning the district and its youth organisations. It could be used to measure the success or to locate the failings of a curriculum experiment designed to develop wide and lasting interests. The controlled diary could be used to validate an objective interest test, to compare objective and subjective interests, or to assess the effect of age, sex, intelligence, environment or socio-economic level on the interests and activities of children.

TABLE 1

Results

| | FOR ALL CHILDREN | | BY SEX | | | | | BY AGE | | | | | | | BY INTELLIGENCE | | | | |
| | | | GIRLS | | BOYS | | | 12 years | | 13 years | | 14 years | | | I.Q.>110 | | I.Q.<90 | | |
Routine Activities	Hours per week	S.D.	Hours per week	S.D.	Hours per week	S.D.	t	Hours per week	S.D.	Hours per week	S.D.	Hours per week	S.D.	t13,14	Hours per week	S.D.	Hours per week	S.D.	t
Bed	70·6	4·4	74·1	3·6	70·0	5·0	1·5	71·7	3·7	71·5	4·1	69·3	4·7	2·1*	70·2	—	70·4	—	—
School	25·0	—	25·0	—	25·0	—	—	25·0	—	25·0	—	25·0	—	—	25·0	—	25·0	—	—
Personal	20·4	3·5	21·8	3·4	19·3	3·2	5·0†	20·4	3·4	18·6	2·1	21·5	3·6	4·2†	20·8	—	19·5	—	—
Duties	7·6	5·5	9·1	5·6	6·2	4·9	2·4*	5·9	4·3	5·7	4·1	9·8	6·1	3·3†	8·0	—	7·0	—	—
Total	123·6	7·4	127·2	7·6	120·5	5·5	1·5	123·0	7·0	120·8	5·6	125·6	8·0	2·7†	124·0	—	121·9	—	—
Leisure Activities																			
Physical	15·0	7·6	12·2	5·7	17·4	8·1	2·7†	17·2	6·0	17·5	8·9	11·6	6·9	2·9†	11·3	3·9	20·2	8·4	4·4*
Passive	14·9	7·6	12·3	6·2	17·0	8·0	3·2†	13·4	7·1	14·8	6·4	15·9	8·5	—	19·4	9·3	14·9	8·4	1·4
Social	8·7	6·2	11·0	5·6	6·8	5·9	3·6†	7·1	7·3	9·3	5·6	9·3	6·3	—	7·5	—	6·2	—	—
Hobbies	2·2	2·9	1·6	2·0	2·8	3·3	3·5†	2·2	2·5	1·8	2·5	2·5	3·2	1·0	1·6	—	2·0	—	—
Literate	2·7	2·4	2·8	1·8	2·6	2·6	—	3·2	2·3	3·1	2·0	2·1	2·3	2·0	3·3	2·6	1·9	1·5	1·7
Misc.	0·9	—	0·9	—	0·9	—	—	0·9	—	0·7	—	1·0	—	—	0·9	—	0·9	—	—
Total	44·4	7·4	40·7	7·8	47·5	5·3	4·9	45·0	7·2	47·2	5·6	42·4	7·9	2·9	44·0	—	46·1	—	18
No. of Children	94		43		51			25		27		42			13		18		

S.D. = Standard Deviation

$$t = \frac{\text{Difference between means}}{\text{Standard error of difference}}$$

If the value of 't' is marked * the difference is significant at the 5% level

if marked † the difference is significant at the 1% level

13,14 relates to the difference in means between the 13 and 14 year old age groups

TABLE 2

RESULTS IN SEPARATE CATEGORIES IN HOURS PER WEEK

1. PHYSICAL

Form		No. of children	Playing in park street or school yard	Swimming	Cycling	Other
Boys	1	10	180½	14½	6½	1½
do.	2	14	192½	18	92½	6
do.	3	27	284	25½	40½	23½
Girls	1	15	210½	6	18½	7
do.	2	13	150½	2½	11½	–
do.	3	15	72	28½	–	15½
I.Q. under 90		18	275	31	39	8
I.Q. over 110		13	118	11½	5½	12

2. PASSIVE

Form		No. of children	Television	Radio	Cinema	Other
Boys	1	10	107½	6	45½	6½
do.	2	14	141½	3½	39½	19
do.	3	27	290½	16½	151½	41
Girls	1	15	116½	19	26½	5
do.	2	13	118	9	38½	31
do.	3	15	75½	13	64½	13
I.Q. under 90		18	152	18	89½	7
I.Q. over 110		13	165	3½	40½	43

3. SOCIAL

Form		No. of children	Church and Sunday school	Club	Talk	Walk	Shop gaze	Visit	Café	Indoor games
Boys	1	10	11½	13½	3	–	1	13½	–	7
do.	2	14	10	3	19½	6½	9½	29½	6	7
do.	3	27	5	34½	49½	23	17½	54	7½	14½
Girls	1	15	22	6	26	4	13	33½	–	24½
do.	2	13	16½	9½	64	4	13	33½	1½	10½
do.	3	15	12	15	47	3	21	34	1½	1
I.Q. under 90		18	3½	–	21½	22½	37	48	1½	16
I.Q. over 110		13	11½	10½	27½	17	32½	19½	2	4½

4. HOBBIES

Form		No. of children	Quiet games	Art	Music	Pets	Construct.	Collect
Boys	1	10	1½	2	½	4½	2	6
do.	2	14	1	1	2½	7½	18½	2
do.	3	27	–	½	1	76½	9½	3
Girls	1	15	–	½	2½	3½	17½	1
do.	2	13	–	16	–	5½	1½	1
do.	3	15	–	7	1	8	4	–
I.Q. under 90		18	–	3	–	23	11½	1
I.Q. over 110		13	1½	1½	1	5½	9	–

TABLE 2 (*cont.*)

5. LITERATE

Form		No. of children	Comic	News-paper	Book	Library	Writing
Boys	1	10	19½	5	5	1	½
do.	2	14	25	13½	6½	½	3
do.	3	27	27½	20½	–	–	3½
Girls	1	15	35½	5	7½	1	–
do.	2	13	21	1½	12½	–	½
do.	3	15	18	10	5	–	3
I.Q. under 90		18	20	12	2	½	–
I.Q. over 110		13	28½	4	8	1	1½

REFERENCES

1. Smalley, L. M., *The Use of a Diary Technique for Investigating the Activities of Children of Secondary School Age*. Dissertation for the Diploma in Education, University of Manchester, June 1957.
2. Fryer, D., *The Measurement of Interests*, New York, Holt, 1931.
3. Wiseman, S., "An Interest Test for Use in Selection for Technical Education", *Brit. J. Educ. Psychol.*, XXIV, 1954, pp. 99-105. Also, "The Use of an Interest Test in 11-plus Selection", *Brit. J. Educ. Psychol*, XXV, 1955, pp. 92-98.
4. Peel, E. A., "Assessment of Interest in Practical Topics", *Brit. J. Educ. Psychol*, XVIII, 1948, pp. 41-47.
5. Pennington, A., "A Study of Leisure Interests in Schoolboys", *Research Review*, No. 1, Inst. of Ed., Univ. of Durham, 1950, pp. 31-37.
6. Wagner, G., *Youth and Leisure*, Manchester and Salford Council for Social Service, 1940.
7. Marburg, F. W., "Studying the Child's Social World", *J. Educ. Sociol.*, XXI, 1947-8, pp. 535-43.
8. James, H. E. O. and Moore, F. T., "Adolescent Leisure in a Working Class District", *Occup. Psychol.*, XIV, 1940.
9. Ward, J., *Children Out of School*, Social Survey, N.S. 110, Central Office of Information, Social Survey Division, 1948. (Typescript.)
10. Morton, R. G., *An Investigation into the Out-of-School Activities of Primary School Children*, Unpublished Ed.B. Thesis, Univ. of Aberdeen, 1951.
11. Stewart, M., "The Leisure Activities of Grammar School Children", *Brit. J. Educ. Psychol.*, XX, 1950, pp. 11-34.
12. Jenkinson, A. J., *What do Boys and Girls Read?*, London, Methuen, 1940.

STREAMING AND
A SOCIOMETRIC STUDY

by R. A. PEARCE

Deputy Head, Woolwich Polytechnic Secondary School

THE staff of a London technical school were recently discussing, at the end of term, the promotion or demotion of boys between forms according to the results of term examinations. A few changes in the upper forms were quickly decided by consideration of the boy's suitability or wish to take the various external examinations. When the junior school was considered a chance word of criticism brought from all quarters objections to the whole policy of excessively sorting-out the boys and of grading forms: "the C form becomes a 'sink' and knows it"; "the good boys in the worst forms raise the tone of the form and the enthusiasm of the masters"; "the 'difficult' boys put together create a formidable problem"; "form spirit is hampered by changes"; "the quick boys help the slow. . . ." The word "streaming" was not mentioned. Those present were not concerned with theories of competition or encouragement but with working conditions in the classroom, with the problems of the boys and classes that they met each day. No statistical evidence was quoted but opinions and arguments were based on years, in some cases more than twenty years, of experience—often with C stream classes. A recommendation was passed by a large majority that the lower forms should not be clearly graded or sorted out until the end of their second year at the earliest.

The present writer later realised how completely these opinions were in accord with the results of a sociometric study carried out recently into the recurrent problem of declining morale and progress in the C stream of a grammar school (Pearce, R. A., University of London M.A. Thesis, 1956). An experimental form in the C stream was taught by the same teacher in English, French, History, and P.E. during their first two years and again in their fourth year. For these subjects they worked in small groups of friends on co-operative projects, and their morale and progress were compared with those of a control form, taken in other years in the same subjects by the same

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master but handled according to more normal classroom methods. A sociometric test of both forms every term during their first two years and again in their fourth year required the boys to choose four companions for working groups in each of the subjects concerned; this data provided material for analysing the changing status of the boys among their fellows, and for calculating an index of morale each term according to the distribution of status about the form. The two forms were compared throughout the experiment by using other tests including a social distance scale, an attitude-to-school questionnaire, teachers' assessments of efforts, lists of boys' likes and dislikes, school statistics, and attainment tests.

The scores in almost all the above tests showed a marked decline for both forms at each subsequent re-test through the years of the experiment—thus confirming the usual impression of deterioration in the C stream. The control form, for example, had a mean score for the attitude questionnaire of 150 at the beginning of the first year, 141 at the end of it, 114 at the end of the second year, and 110 at the beginning of the fourth. The other tests indicated a similar fall in standards in both forms except that the deterioration was markedly less in the experimental form. The hypothesis of the experiment maintained that the decline in morale typical of the C stream was due to the frustrations and discouragements of constant streaming and competition; the smaller decline in morale in the co-operative atmosphere of the experimental form was considered to support this hypothesis. The experiment was not large enough for its findings to be highly significant statistically, but there were other interesting features of the results that pointed to the ill effects of streaming.

The sociometric tests showed that a boy's status (the number of times he was chosen) depended very much on his previous success at the subject for which the grouping was intended. (This was most evident in physical education where the agile ones were chosen often, although they were seldom chosen in other subjects.) A boy's general popularity, revealed by his rating on the social distance scale by everybody else in the form, largely corresponded to a composite score according to his abilities in the various subjects. Moreover, the teachers' assessments of a boy's effort, and his attitude to school as measured by the questionnaire, correlated highly with the status he held among his fellows. In fact all these elements—success, status, attitude, effort, school activities, and attainment (or more often the lack of these things) were so closely related that it was difficult to determine which was cause and which was effect. The general implication

from these results was that in any form where streaming, or anything else, gave a sense of failure or a reputation of inferiority, a decline in morale, effort, and attainment was inevitable.

The terminal promotions usually took away from the C form boys who were among the best in attitude and effort. The sociometric tests showed that they were usually "stars", centres of friendship and influence among their fellows. When they were promoted important forces for good within the form were lost; and they were replaced by boys whose feeling of failure probably made them an influence in the opposite direction.

Nor would it appear that the loss to the C stream was necessarily a gain to the B. The sociometric tests showed that the basic patterns of friendship and status within a form changed very slowly, and only within limits, throughout the four years. Newcomers, from outside the school, rarely received many choices for a long time—unless they were of exceptional ability compared with the rest of the form. The boy promoted into the B form was unlikely to be such a potent influence for good in his new form as he had been in his previous one.

The experiment also showed that, even where boys were not taken from the form, the choices in both forms became more and more concentrated upon a few boys. Indeed the control form in the fourth year gave almost all their choices to the three top boys, who were also successful sportsmen, while the bulk of the form appeared to be unchosen and unesteemed. It did not need the sociometric test to indicate the atmosphere of failure, apathy, incompetence, and irresponsibility, which seemed to hold them individually and collectively. In the experimental form the same tendency to concentrate choices on a few stars was present but to a lesser degree. There were fewer really underchosen individuals, and there were even signs of choices distributed on a basis of friendship regardless of the considerations of success so typical of the other form.

The history of the C stream forms also revealed how many staff changes they had suffered and how often they had been taken by inexperienced teachers during their four years in the school. Where a school is organised on a system of streaming and where there are external examinations it seems inevitable that the C streams suffer because of the quality of the staff (and often through inadequacy in other things such as rooms and books), however fervent may be the resolutions of those in authority to ensure otherwise.

The effects of streaming are not avoided by the policy of "setting" for each subject. At least, in the experiment we are describing, the

process of setting was the most soul-destroying of all; the slower boys found themselves classified as the "poor relations", "the unwanted" not once, but over and over again, in each subject in turn.

That the decline in attitude and effort in the C stream was due, in part at least, to the frustrations of adolescence was confirmed by some of the entries in the list of likes and dislikes, and by the analysis of their school activities; but it also appeared that the competitive atmosphere of streaming aggravated these difficulties. The boys disliked "exams", "low form positions", "superior boys in A and B forms", "masters who don't push you on", and "the fear of being sent to another school". At the same time boys of low status in the form were often the most energetic in playground football, in evening youth clubs, or in street corner society. It is possible that a less competitive form of school organisation would have alleviated these difficulties and given opportunities for these energies in school affairs.

BOOK NOTICES

M. V. C. JEFFREYS: *Mystery of Man*. Pitman, 1957, 15s.

IN this short book Professor Jeffreys has written a manifesto or confession of faith as an educationist.

The book is divided into three parts. The first deals with "The Philosophical Dilemma", and shows the pressure in the modern world to evade the responsibilities implied in man's unique status as a rational and moral being. Stress is laid on the importance of the witness of the existentialists that only in active personal choice does man achieve his true being.

Part II, "Belief", is an exposition of a Christian interpretation of experience in which these tensions and conflicts are resolved. The justification for this procedure is Gabriel Marcel's distinction between a "problem" and a "mystery": "But the problem can be seen, so to speak, in reverse, so that the question becomes the answer. We can take the mystery as something to look *through*, not to look *at*." (p. 24)

Part III deals with the implications of the acceptance of this interpretation for education.

In the first chapter of Part II Professor Jeffreys distinguishes three different kinds of truth, which he calls "truth of *Logic*", "truth of *Fact*" and "truth of *Value*". The first two are capable of relatively coercive proof: the last is not. "In order to establish a truth of value, argument proceeds by showing the consequences and implications of this or that opinion, and thus relating opinions to a total philosophy of life (Weltanschauung). That interpretation is most 'true' which makes most sense of most things, does not explain by explaining away, and does not turn the blind eye to awkward facts of experience. . . . The ultimate test of truths of value is the coherence and *adequacy* of the total view of life to which they belong." (p. 35) It is this third kind of truth that Professor Jeffreys would claim for the belief, on which the book is based, that "we shall never make sense of human behaviour if we use subhuman categories to describe it—that, alongside the physico-chemical and biological categories, we need categories that are 'personal' in the sense that they provide the appropriate terms in which to describe the behaviour of rational and moral beings". (p. 17) The strength of the book is the number of things of which a wide-ranging intelligence finds itself "making sense", the number of what might appear likely to prove "awkward facts" which fall into their place within the total world view. Greek philosophy and tragic drama, the methods of science, individual and social psychology, individualism and totalitarianism, all come in for discussion. A weakness is an apparent

uncertainty of the scale and level of maturity of discussion appropriate. This is probably inevitable, since it would vary from reader to reader. The present reader found the treatment of the difference between "cause" and "reason" prolix, the illustration, from the Behaviourist and Gestalt psychologies, of the way in which scientific presuppositions largely determine the data available a masterpiece of clear and concise exposition, while the difficult conception of science as revealed was used without any attempt to clarify the meaning of revelation or the differences of media through which it may be conveyed.

Many practising teachers will accept Professor Jeffreys' plea for the education of the whole human being—including the emotions; he speaks both of "the emotional shallowness of the sophisticated" and "the emotional shallowness of the non-intellectual, whom nothing has ever deeply stirred below the level of conventional sentiment and trivial entertainment" —so that he will develop into a mature and responsible person. What will delight them will be the same wide-ranging realism with which he faces the facts both of the conditions under which and the means by which it must be achieved, and also the different levels at which achievement will find expression: "The business of social organisation, and of education, is to see that, as far as possible, every dog has his day. If there are few people capable of intelligent judgment on matters of national policy, most people should be able to find a more limited field of opportunity where they can develop their own powers and serve the common good." (p. 79)

What could be more disarming than to end a book on these high themes with a quotation from Edward Blishen's *Roaring Boys*: thus claiming Stonehill Street as a place where education is called upon to "fortify each individual in the struggle to redeem and establish the true dignity of man".

<div align="right">MARGARET B. HOBLING</div>

D. J. O'CONNOR: *An Introduction to the Philosophy of Education*. Routledge & Kegan Paul, 1957, 10s. 6d.

A. V. JUDGES (ed): *Education and the Philosophic Mind*. Harrap, 1957 8s. 6d.

PHILOSOPHY is a word of disconcerting versatility, not least as it is used by educationists. For some teachers it is almost a pejorative, connoting something like Bradley's "bloodless ballet of categories", with little conceivable relevance to the exigencies of the classroom: how can "thinking of a kitchen table when you're not there" (Andrew Ramsay's vivid image in *To the Lighthouse* may stand as a convenient symbol of the epistemological inquiries which figure so prominently in philosophical texts) help you to cope with restless adolescents in their final term of the secondary modern school —except possibly by sharpening your wits? For others, among whom are to be included many, if not most, of those whose job it is to teach Education as a subject in universities and colleges, philosophy is the impressive port-

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manteau from which are produced those homiletic utterances about the nature of man, his relations with God and his duties to his fellows in society, which figure so prominently—and, be it admitted, often so memorably—in their curricula. A certain colour is lent to this usage by the fact that many of these utterances are drawn from works written by men to whom no one can be found ready to deny the title of philosophers. From Plato to Dewey and from Locke to Collingwood philosophers have pronounced on education; and though their critics seldom seem willing to devote much time to their educational writings, which, indeed, except perhaps in the case of Plato, they are inclined to treat as parerga, where would the academic study of Education be without *The Republic, Some Thoughts Concerning Education* and *The Aims of Education*? The educational psychologist, again, is apt to regard philosophy as covering all the territory where the writ of his scientific procedures does not run; where *I* cannot measure, he thinks, *they* philosophise; and there is often a certain contempt in the antithesis. The historian of education draws a distinction between facts (e.g. the administrative provisions of an act of parliament) and their philosophical significance (e.g. how to account for the steadily increasing humanitarianism which characterised educational legislation last century). The specialist in pedagogic method will contrast *mere* technique ("tricks of the trade") with that which is founded on principles or a philosophy of the subject. Now, there is no reason why a word should be discarded because it is versatile, but a versatility as great as has here been glanced at is in danger of so attenuating the word that it ceases to be useful.

It is such a situation as this, where words have deteriorated "in the general mess of imprecision", that makes us turn with a certain relief to the new school of philosophical analysis. It is dangerous to reduce a complex movement of thought to a single formula, but we can perhaps safely say that this school is characterised by a peculiarly stubborn attempt to define and delimit the signification of words which have lost the sharp edges of their meaning by their long and easy currency among philosophers. Its method is minute logical analysis of propositions; its criterion of validity is universally admitted fact based on the deliverances of the senses; its aspiration is towards the certainty of the physical sciences, from the success of which it has derived much of its impetus. It rehabilitates the word "philosophy" by strictly reserving it to indicate this process of definition, clarification and verification by experience; activities outside this regulative function are dismissed as not-philosophy, as preaching or (now a term of dismissal) metaphysics. New this school is in the sense that it has come to dominate the philosophical scene (in England and America) in the last twenty years, but anyone familiar with the history of philosophy will recognise in it the apotheosis of the negative side of the Platonic Dialectic (the positive side, which culminates in the mystical and poetical theory of Ideas, is rigorously excluded). If its results in practice strike us as carping, negative and somewhat barren, we have to

confess that we often carry away a not dissimilar impression from one of the Socratic dialogues: we are not, we may feel, much nearer any lasting truth on which we can permanently repose, though, if we have really been submitting our minds to the exchanges of the dialogue, we will have gained in clarity about the issues involved—will know more exactly what we are in the dark about—will emerge, so to say, with a refined agnosticism.

It is this limited satisfaction that Professor O'Connor offers us in his *Introduction to the Philosophy of Education*. With all the technical expertness that is characteristic of his school, he demonstrates that

ultimately, all the questions that can be asked about a given educational system can be reduced to two: (i) What is held to be valuable as an end? (ii) What means will effectively realise these ends? (p. 7)

and shows that as (ii) is a matter for scientific experiment to determine, the main role of philosophy in the field of education is to inquire into the nature and validity of the value-judgments that are constantly being made within it. Chapter 3 is accordingly devoted to discussing the Justification of Value Judgments. Chapter 4 is a general examination of the nature of Theories and Explanation, the findings of which are applied in the succeeding chapter to so-called educational theories—so-called, for Professor O'Connor bleakly concludes that "the word 'theory' as it is used in educational contexts is generally a courtesy title. It is justified only where we are applying well-established experimental findings in psychology and sociology to the practice of education". (p. 110) Finally, in Chapter 6, Some Questions of Morals and Religion are analysed to provide a concrete demonstration of the claim that the critical philosophy "does not give us any new knowledge" and to show that metaphysics and religion do not afford anything that can legitimately be called knowledge.

"The critical philosopher", says Professor O'Connor, "is not to be thought of as a sort of intellectual demolition contractor . . . [but] rather . . . a sort of inspector or assayer who rejects those theories and arguments which can be shown to be faulty by the logical touchstones or gauges which are his stock in trade". (p. 111) The metaphor perhaps hardly matters; whichever is chosen, the emphasis is squarely upon the discarding of what is no longer useful, valuable, convincing. And in the end the philosophy of education itself disappears: "there is no such 'subject' . . . any more than there is such a 'subject' as the philosophy of science". (p. 139) All there is is a technique of analysis, which can be applied to science, art, history or any other field of inquiry as much as to education. And with much the same results in all. What is empirically verifiable remains unscathed and constitutes a hard core, which must be extended by every possible means; the rest is, at most, psychologically interesting.

Professor O'Connor's book can be recommended to all students of education as a stimulus and a challenge to turn out and scrutinise their stock notions. It is only the second book to appear in which the findings

of the analytical school have been applied to education, and if it shows less first-hand knowledge of educational thought than C. D. Hardie's *Truth and Fallacy in Educational Theory* (1942), it is better adapted as an introduction to that school. It will not, and should not, command a total assent. If the analysts are the most vigorous and influential school of philosophers in this country at the present time, it has to be firmly borne in mind that logical analysis or critical empiricism nevertheless is only one type of philosophy and that other schools define philosophy differently and consequently have a different view of education. It is the purpose of the book which Professor A. V. Judges has edited to appraise some of these schools and discuss their bearings on education; his team of experts surveys in turn Platonism, Neo-Thomism, Existentialism, Pragmatism, Behaviourism, Logical Positivism (under which the analytical school is subsumed), Scientific Humanism and Dialectical Materialism; Professor L. Arnaud Reid attempts a summing-up on the theme of Philosophy and Education, while Professor Judges himself presides over the whole in an Introduction which fully makes up in subtlety and discretion for what it may lack in cogency. Anyone who finds Professor O'Connor's book repellently austere may turn to this symposium in the confidence of finding here more of that rich diet of abstractions, overwhelming questions and transcendent entities which is traditionally expected from philosophers. Professor O'Connor's unabashed confidence in his method and his unemotional scepticism here give place to the clash of schools and the eager, confusing babel of opposing dialects. Professor O'Connor, whether or not he is willing to wound, is certainly not afraid to strike; Professor Judges and his colleagues conduct their debate with the exemplary good manners of an older generation of academics—theirs are the gentlest of blows, the least penetrating of thrusts. Inevitably, the symposium makes less impact than the book which is at once primer and polemic and is a strong, single utterance. But whoever, recovering his mental wind after the rush of Professor O'Connor's argument, feels dissatisfaction and sees a focus for it in his confident positivism, will find in several places in the other book, but particularly in two chapters, the suggestion of an antidote.

Professor Barnes' chapter on Logical Positivism is a fair-minded evaluation of the virtues and failings of the school, and it contains an admirably concrete discussion of the educational implications of positivism which gets to grips with the questions teachers are sure to ask, and which points to dangers and weaknesses in a positivist educational programme (p. 137) that are already only too obvious in secondary education. Professor Jeffreys' chapter on Existentialism, written vigorously in an idiom which is anathema to the logical analyst, is a full-blooded statement of the anti-positivist case. At one with the positivists that "God is not established by 'reasons' ", he is aware, in a way they never are, that man's need for God, whether or not it can be gratified, is a *fact* of the profoundest importance. It is in virtue of his awareness of this fact and of his insight into the

anxiety that springs from it, that he is able to enter so sympathetically into the minds of the existentialist writers, about whom Professor O'Connor writes so slightingly (p. 26). Professor Jeffreys claims (p. 69) that the full meaning of human experience can find expression "only in the categories of art and religion", and on a later page he draws out the implications of this claim for education. It is interesting to observe that Professor O'Connor's statement (p. 12) of the place which should be occupied in education by "what is b st in literature, art, music, science and the rest of the apparatus of hi, her civilisation" is as mechanical and external as Herbert Spencer's. Where art is undervalued, the primacy of the individual human being is likely to be forgotten: Professor Jeffreys insists on the danger of reducing human life to abstractions which is inherent in scientific procedures. "Man", says Professor O'Connor, "is a part of nature" (p. 98)—it is an easy step to regard him as a set of statistical observations. We may find it difficult to follow Professor Jeffreys (perhaps in both senses of the verb) all the way in his discussion of the nature and destiny of man, but he convinces us that there is a whole continent of human nature which the logical analysts have not yet discovered.

There are obvious dangers when philosophers who are not educationists and educationists who are not philosophers embark on the discussion of the philosophy of education, and, as has been suggested, both these books have their faults. Nevertheless, they both deserve a warm welcome from all students and teachers of the subject. Read side by side, discussed in tutorials and seminars, their hints expanded, their bibliographical clues followed up, they could bring a new vividness and reality to a part of the student-teacher's course which is more often nebulous and a matter of indifference than vigorous and misguided. For a worse enemy in the schools than either a conscious positivism or a militant metaphysics is the mind which remains quietly closed to all ideas alike.

RICHARD HAMILTON

R. D. ALTICK: *The English common reader*; *a social history of the mass reading public 1800-1900*. University of Chicago Press, 1957.
U.N.E.S.C.O.: *World illiteracy at mid-century*; *a statistical study*. U.N.E.S.C.O., 1957.

PROFE OR ALTICK's book is the first major attempt to study the place of readi g and to plot the growth of the mass reading public in England. After a glance at earlier times, the book concentrates mainly on the nineteenth century and is at once a social and a literary history of this period. The trends of thought in the social, economic, religious, philosophical and educational fields are carefully documented and much is said, directly and indirectly, about the educational movements of the nineteenth century.

"All backers of education for the masses", says Professor Altick, "were

convinced that ignorance and illiteracy were responsible for most crimes."
And although this may oversimplify the origins of the movement towards
mass education, it is nevertheless true that morality and education, in the
narrow sense of these terms, were definitely linked in this period. At on
end of the scale can be cited the London Statistical Society's preoccupatio.
with statistics which demonstrated the relationship between illiteracy and
crime; at the other was the well-known gibe against Matthew Arnol
that "Mr Arnold was aware of the Diety's preference for university men '

Much of this book, therefore, makes ironic reading to-day. T
growth of Mechanics' Institutes, the public library movement, the develo
ment of the trade in books and periodicals, throw into relief the urge
towards improvement so characteristic of this period and the parall
failure to define education except in the narrowest terms. The Grac
grindian belief in the efficacy of facts produced teacher-training instituti
which were "pedant-factories whose machinery efficiently removed wl
ever traces of interest in human culture the scholars had picked up". T.
growth of the trade in books and periodicals reflects not only the rise i
the literacy rate but the growing awareness of publishers that a public
had been created whose appetite for sensational fiction could feed upon
itself indefinitely. There are no arguments used to-day against the cinem
and television which are not an echo of the informed opinion of the
nineteenth century inveighing against the debasing influence of fiction
geared to the taste of the semi-literate. "Whatever flatters the mind in it
ignorance of its ignorance, tends to aggravate that ignorance" was Cole
ridge's verdict on a situation foreseen by those few whose vision was nc
blinded by their fervour for moral improvement.

Yet the growth of literacy is, in itself, a matter of conjecture. Both
Professor Altick's book and the UNESCO survey of literacy present us
with the same figures for England during the last half of the nineteenth
century. The estimate of decrease in illiteracy is based upon the percentage
of people signing the marriage register by mark. Professor Altick employs
some telling arguments to shed doubt upon the efficacy of using this as a
basis for reckoning. And the UNESCO publication, which attempts a
world-wide statistical coverage of literacy, is especially remarkable for the
different methods it records for obtaining literacy figures in various parts
of the world. There is no common definition of literacy to be had. During
the 1921 Ceylon census the ability to write a short letter was the adopted
standard; in France up to 1935 ability to read and write when called for
national service was the yardstick; figures for Japan and the U.S.A. ar
based upon nation-wide surveys, presumably differing in their standards.
This book is a fascinating compendium of facts and figures; but the lack
of a common definition of literacy is a severe handicap.

G. G. H. Gomm